OM of: US-09-303-518D-653 to: Issued_Patents_AA:* out_format : pfs

Date: Jun 30, 2002 7:30 AM

About: Results were produced by the GenCore software, version 4.5,
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Command line parameters:
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-NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=2000000000
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Query length: 4407
Database: Issued_Patents_AA:*
Database sequences: 231628
Database length: 24425594
Search time (sec): 185.890000

score_list:

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seq_documentation_block:
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; Patent No. 6245337
; GENERAL INFORMATION:
; APPLICANT: St. Geme III, Joseph W.
; APPLICANT: Falkow, Stanley
; TITLE OF INVENTION: Haemophilus Adherence and Penetration
; TITLE OF INVENTION: Protein
; NUMBER OF SEQUENCES: 9
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert
; STREET: 4 Embarcadero Center, Suite 3400

```
;       CITY:  San Francisco
;       STATE:  California
;       COUNTRY:  United States
;       ZIP:  94111-4187
;     COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  PatentIn Release #1.0, Version #1.25
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/08/296,791
;       FILING DATE:  25-AUG-1994
;       CLASSIFICATION:  435
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Trecartin, Richard F.
;       REGISTRATION NUMBER:  31,801
;       REFERENCE/DOCKET NUMBER:  A-59941/RFT/RMS
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  (415) 781-1989
;       TELEFAX:  (415) 398-3249
;       TELEX:  910 277299
;   INFORMATION FOR SEQ ID NO:  3:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  1541 amino acids
;       TYPE:  amino acid
;       TOPOLOGY:  unknown
US-08-296-791-3


alignment_scores:
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              Ratio:  1.732                Gaps:     48
 Percent Similarity:  54.312   Percent Identity: 26.865

alignment_block:
 US-09-303-518D-653 x US-08-296-791-3   ..

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     214 GAGGTTTACAACAAAAAAGGGGAGTTGGTCGGCAAATCGATGACGAAAGC 263
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     264 C...CCGATGATTGATTTTTCTGTGGTATCG...CGTAACGGCGTGGCGG 307
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     355 TATAACAATGTTGATTTTGGT..............GCGGAGGGAAGCAA 389
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     105 ValSerGluLeuHisPheGlyAsnLeuAsnGlyAsnMetAsnAsnGlyAs 121

     390 TCCCGATCAGCACCGC.................TTTTCTTACCAAATTG 421
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     121 nAlaLysAlaHisArgAspValSerSerGluGluAsnArgTyrPheServ 138

     422 TGAAAAGAAATAATTATAAAGCAGGGACTAACGGC.............. 456
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     138 alGluLysAsnGluTyrProThrLysLeuAsnGlyLysThrValThrThr 154

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     718 GGTGGCACAGTCAACTTAGGTAGCGAAAAAATTAAACATAGC...CCATA 764
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     255 AsnGlyLeuIleGlyPheGlyAsnSerLysGluGluHisSerAspProLy 271

     765 TGGTTTTTTACCAACAGGA..............GGCTCATTTGGCGACA 799
          |||:::|||                  :::   :::|||||||
     271 sGlyIleLeuSerGlnAspProLeuThrAsnTyrAlaValLeuGlyAspS 288

     800 GTGGCTCACCAATGTTTATCTATGATGCCCAAAAGCAAAAGTGGTTAATT 849
         ||||||||||:::|||:::|||||||   :::|||   ||||||||||:::
     288 erGlySerProLeuPheValTyrAspArgGluLysGlyLysTrpLeuPhe 304

     850 AATGGGGTATTGCAAACAGGCAACCCCTATATAGGAAAAAGCAATGGCTT 899
            |||      :::            |||      ||||||
     305 LeuGlySerTyrAspPheTrpAlaGlyTyrAsnLysLysSer........ 318

     900 CCAGCTAGTTCGTAAAGATTGG...TTCTATGATGAAATCTTTGCTGGAG 946
                     :::::::|||   :::|||   :::   |||:::   |
     319 ..........TrpGlnGluTrpAsnIleTyrLysSerGlnPheThrLysA 332

     947 ATACCCATTCAGTATTCTACGAACCACATCAAAATGGGAAATACTTTTTT 996
         ||:::
     332 spValLeu..................................... 334

     997 AACGACAATAATAATGGCGCAGGAAAAATCGATGCCAAACATAAACACTA 1046
               |||:::::::::||||||::::::   ::::::          ||
     335 ......AsnLysAspSerAlaGlySerLeuIleGlySerLysThrAspTy 349

    1047 TTCTCTACCTTATAGATTAAAAACACGAACCGTT............CAAT 1084
         ||||         :::   ||||||  .|||:::            :::
     349 rSerTrpSerSerAsnGlyLysThrSerThrIleThrGlyGlyGluLysS 366

    1085 TGTTTAATGTTTCTTTATCCGAGACAGCAAGAGAACCTGTTTATCATGCT 1134
           :::||||||:::|||::::::          :::|||
     366 erLeuAsnValAspLeuAlaAspGlyLysAspLysPro............ 378

    1135 GCAGGTGGGGTCAACAGTTATCGACCCAGACTGAATAATGGAGAAAATAT 1184
                                            |||:::|||:::::::
     379 ............................AsnHisGlyLysSerVa 384

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         ::::|||      :::|||:::|||   |||   |||::::::||||||:
     384 lThrPhe......GluGlySerGlyThrLeuThrLeuAsnAsnAsnIleA 399

    1235 ACCAAGGCGCGGGCGGTTTGTATTTTGAGGGTAATTTTACGGTC...TCG 1281
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     399 spGlnGlyAlaGlyGlyLeuPhePheGluGlyAspTyrGluValLysGly 415
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1282 CCTAAAAACAACGAAACGTGGCAAGGCGCGGGCGTTCATATCAGTGATGG 1331
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 432 yLysThrValThrTrpLysValHisAsnProGlnTyrAspArgLeuAlaL 449

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     ||||||||||||||||||||:::|||:::::   |||:::|||:::|||
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1432 TCGGTCAGCGTGGGCGACGGTAAAGTCATCTTAGATCAGCAGGCGGACGA 1481
     |||::::::|||||||||||||   |||||||||   ||||||::::::
 466 SerLeuLysValGlyAspGlyThrValIleLeuLysGlnGlnThrAsnGl 482

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 482 ySerGly...GlnHisAlaPheAlaSerValGlyIleValSerGlyArgS 498

1532 GGACGGTGCAACTGAATGCCGATAATCAGTTCAACCCCGACAAACTCTAT 1581
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1582 TTCGGCTTTCGCGGCGGACGTTTGGATTTGAACGGGCATTCGCTTTCGTT 1631
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 531 eAspHisIleArgAsnIleAspAspGlyAlaArgLeuValAsnHisAsnM 548

1682 AAGACAAAGAATCCACCGTTACCATTACAGGCAATAAAGATATTACT... 1728
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1728 ..................................................... 1728

 565 ProAsnThrIleThrProTyrAsnIleAspAlaProAspGluAspAsnPr 581

1728 ..................................................... 1728

 581 oTyrAlaPheArgArgIleLysAspGlyGlyGlnLeuTyrLeuAsnLeuG 598

1728 ..................................................... 1728

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1729 .........ACAACCGGCAATAAC..........................  1743
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 615 LeuProLysAsnSerGlyGluSerAsnGluAsnTrpLeuTyrMetGlyLy 631

1744 ............................AACAACTTGGATAGCAAAA 1762
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 631 sThrSerAspGluAlaLysArgAsnValMetAsnHisIleAsnAsnGluA 648

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     ::      ::::::||||||:::|||||||||:::::::::   |||:::
 648 rgMetAsnGlyPheAsnGlyTyrPheGlyGluGluGluGly...LysAsn 663

1813 AACGGGCGGCTCAATCTGAATTACCAACCGGAAGAAGCGGATCGCACTTT 1862
     ||||||:::||||||:::::::::::   ::::::   ::::::   ::
 664 AsnGlyAsnLeuAsnValThrPheLysGlyLysSerGluGlnAsnArgPh 680

1863 ACTGCTTTCCGGCGGAACAAATTTAAACGGCAATATCACGCAAACAAACG 1912
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1913 GCAAACTGTTTTTCAGCGGCAGACCGACACCGCACGCCTACAATCATTTA 1962
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 697 lyThrLeuPheLeuSerGlyArgProThrProHisAlaArgAspIleAla 713
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1963 GGAAGCGGGTGGTCAAAAATGGAAGGT......ATCCCACAAGGAGAAAT 2006
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 714 GlyIleSerSerThrLysLysAspProHisPheAlaGluAsnAsnGluVa 730

2007 CGTGTGGGACAACGATTGGATCGACCGCACATTTAAAGCGGAAAACTTCC 2056
     :|||   ::::::|||||||||:::|||:::|||||||||   :::::::
 730 lValValGluAspAspTrpIleAsnArgAsnPheLysAlaThrThrMetA 747

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 747 snValThrGlyAsnAlaSerLeuTyrSerGlyArgAsnValAlaAsnIle 763

2104 GAAGGCGATTGGCATTTAAGCAATCACGCCCAAGCAGTTTTCGGTGTCGC 2153
        ::::::          ||||||   ||||||:::   :::|||
 764 ThrSerAsnIleThrAlaSerAsnLysAlaGlnValHisIleGlyTyr.. 779

2154 ACCGCATCAAAGCCACACAATCTGTACACGTTCGGACTGGACGGGTCTGA 2203
                ::::   |||:::|||:::||||||||||:::||||||   :
 780 ....LysThrGlyAspThrValCysValArgSerAspTyrThrGlyTyrV 795

2204 CAAGTTGTACCGAAAAAACCATTACCGACGATAAAGTGATTGCTTCATTG 2253
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 795 alThrCysThrThrAspLysLeuSer...AspLysAlaLeuAsnSerPhe 810

2254 AGCAAGACCGACATCAGAGGCAATGTCAGCCTTGCCGATCACGCTCATTT 2303
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 811 AsnProThrAsnLeuArgGlyAsnValAsnLeuThrGluSerAlaAsnPh 827

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 851 ..................................................... 851

2604 TGAAAACAGCCGCTTTACCGGAAAAATCAGCGGCGGCAAGGATACGGCAT 2653

 851 ..................................................... 851

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2754 CGATGCGGCAGGCGCGCAAACCGGCAGTGCGGCAGATGCGCCGCGCCGCC 2803
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 880 rAsn..................................................  881

2804 GTTCGCGCCGTTCCCTATTATCCGTTACGCCGCCAACTTCGGCAGAATCC 2853
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2854 CGTTTCAACACGCTGACGGTAAACGGCAAATTGAACGGTCAGGGAACATT 2903
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     :::::|||:::   |||::::::||||||  |||   :::       :::
 917 hrLysSerAlaThrGlyAsnPheThrLeuGlnValAlaAspLysThrGly 933

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 964 euGlyAlaTrpLysTyrLysLeuArgAsnValAsnGlyArgTyrAspLeu 980

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3162 ................................................. 3162

1047 uSerLysThrValGluLysAsnGluGlnAspAlaThrGluThrThrAlaG 1064

3163 ..................................GTCAAAGAACAAGAG 3177
                                       ||||||   :::
1064 lnAsnArgGluValAlaLysGluAlaLysSerAsnValLysAlaAsnThr 1080

3178 CTTTCCGACAAACTCGGCAAGGCGGGA...GAAACAGAGGCCGCCTTGAC 3224
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1081 GlnThrAsnGluValAlaGlnSerGlySerGluThrLysGluThrGlnTh 1097

3225 GGCAAAACAGGCACAACTTGCCGCCAAACAACAGGCGGAAAAAGACAACG 3274
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1114 alGluThrGluLysThrGlnGluValProLysValThrSerGlnValSer 1130

3301 GCCGGGCGCAATGCCACCGAAAAGGCAGAAAGTGTTGCCGAACCGGCCCG 3350
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1131 ProLysGlnGluGlnSerGluThrValGlnProGlnAlaGluProAlaAr 1147

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1160 erGlnThrAsnThrThrAlaAspThrGluGlnProAlaLysGluThrSer 1176

3448 GCG.............................................. 3450
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1177 SerAsnValGluGlnProValThrGluSerThrThrValAsnThrGlyAs 1193

3451 .....................GAAACCCGGCCGGCTACCACCGCCTTCC 3478
                          :::|||   |||||||||||       |
1193 nSerValValGluAsnProGluAsnThrThrProAlaThrThrGln...P 1209

3479 CC.................................CGCGCCCGCCGC 3492
     ||                                  |||   ||||||
1209 roThrValAsnSerGluSerSerAsnLysProLysAsnArgHisArgArg 1225

3493 GCCCGCCGGGATTTGCCG...CAACCGCAGCCCCAACCGCAACCCCAACC 3539
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1226 SerValArgSerValProHisAsnValGluProAlaThrThrSerSerAs 1242

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       :::|||                ||||||   |||       :::|||:
1242 nAspArgSerThrValAlaLeuCysAspLeuThrSerThrAsnThrAsnA 1259

3572 GCGGTTTGAGTGAATTTTCCGCC..............ACGCTCAACAGC 3606
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          ||||||::::::::::::::::::::::   :::   ::::::
1276 GlyLysAlaValSerGlnHisIleSerGlnLeuGluMetAsnAsnGluGl 1292

3654 CCGCAACGCCGTTTGGACAAGCGGCATCCGGGACACCAAACACTACCGTT 3703
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     :   |||::::::|||:::||||||   :::   ::::::::::::
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3851 TTGCCCACGGTGCCGTTTTCGGGCAATACGGCATCGGCAGGTTCGACATC 3900
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     ||||||:::   |||   |||        :::::::::|||:::   :::
1376 GlyIleAspLeuGlyTyrGlyLysPheGlnSerLysLeuGlnThrAsnHi 1392

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1392 sAsnAlaLysPheAlaArgHisThrAlaGlnPheGlyLeuThrAlaGlyL 1409

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1409 ysAlaPheAsnLeuGlyAsnPheGlyIleThrProIleValGlyValArg 1425

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1442 sValAsnProIleSerValLysThrAlaPheAlaGlnValAspLeuSerT 1459

4151 ATTCATTCAAACCGGCGCAACACATTTCCATCACGCCTTATTTGAGCCTG 4200
     ||::::::         ::::::   :::|||:::||||||   ||||||
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     4251 CGTATTGGCGCAGGATTTCGGCAAAACCCGCAGTGCGGAATGGGGCGTAA 4300
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seq_documentation_block:
; Sequence 3, Application PC/TUS9510661A
;  GENERAL INFORMATION:
;    APPLICANT:  Washington University, et al.
;    TITLE OF INVENTION:  Haemophilus Adherence and Penetration Protein
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  4 Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/10661A
;      FILING DATE:  16-AUG-1995
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/296,791
;      FILING DATE:  25-AUG-1994
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Trecartin, Richard F.
;      REGISTRATION NUMBER:  31,801
;      REFERENCE/DOCKET NUMBER:  FP-59941/RFT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1541 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  unknown
PCT-US95-10661A-3


alignment_scores:
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 Percent Similarity:  54.312   Percent Identity: 26.865

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 Align seg 1/1  to: PCT-US95-10661A-3  from: 1  to: 1541

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     264 C...CCGATGATTGATTTTTCTGTGGTATCG...CGTAACGGCGTGGCGG 307
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     631 .CCCAATAACCGCGAAAGTTCATATCAT............ATTGCAAGCG 667
     221 eLeuAsnAsnHisGluValGlyGlyAsnAsnLeuLysLeuValGlyAspA 238

     668 CATATTCTTGGCTCGTCGGTGGCAATACCTTTGCACAAAATGGATCAGGT 717
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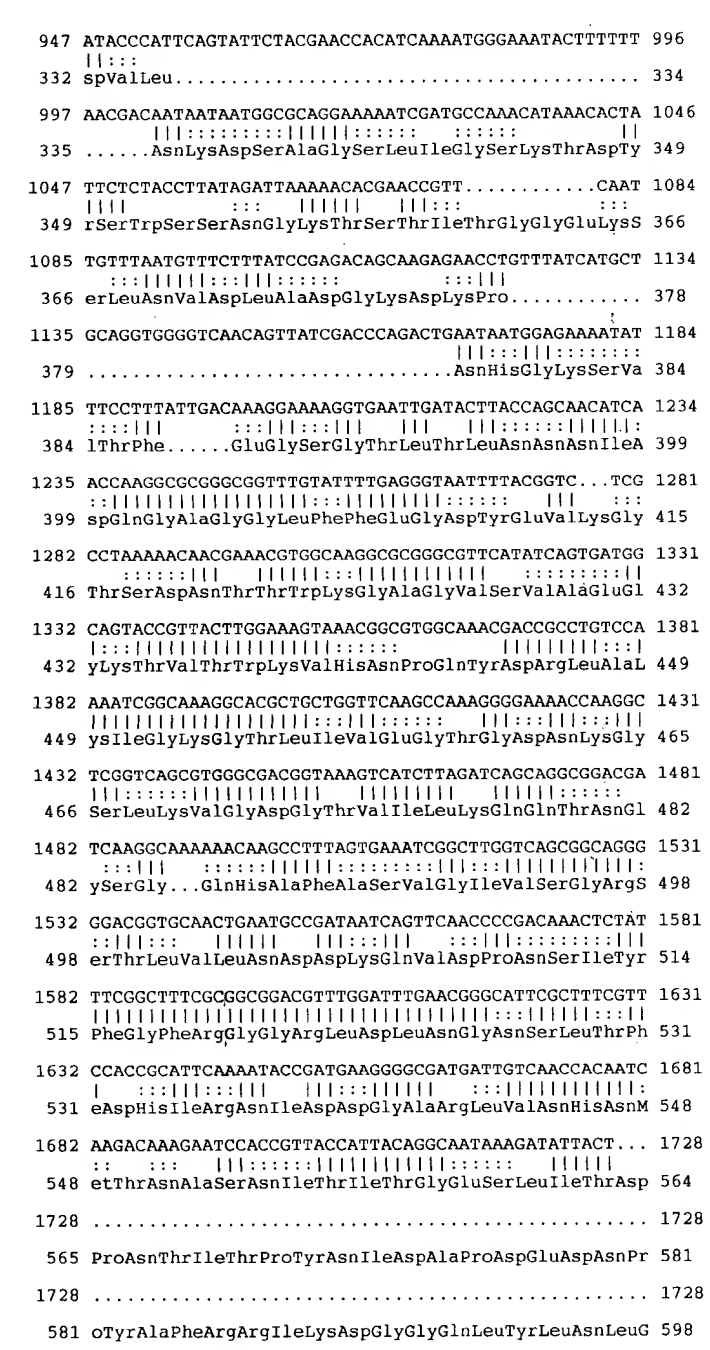
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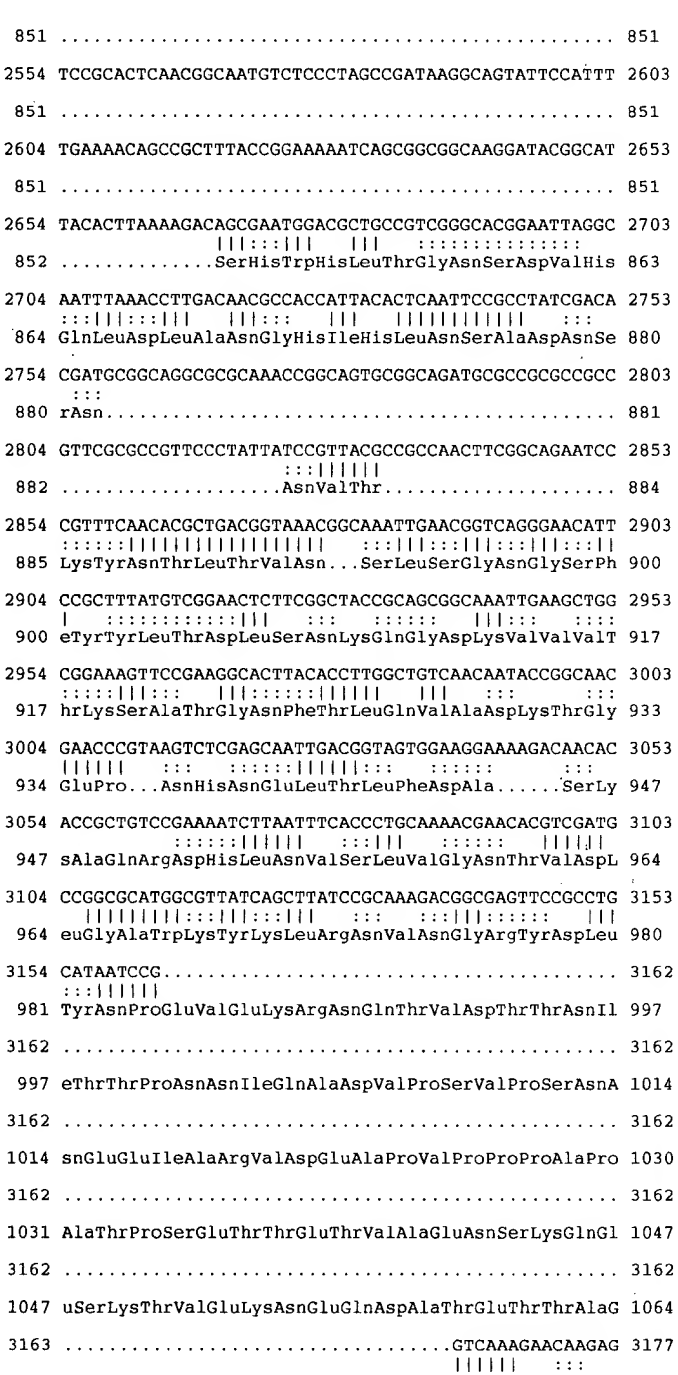
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; Sequence 4, Application US/08296791
; Patent No. 6245337
;  GENERAL INFORMATION:
;    APPLICANT:  St. Geme III, Joseph W.
;    APPLICANT:  Falkow, Stanley
;    TITLE OF INVENTION:  Haemophilus Adherence and Penetration
;    TITLE OF INVENTION:  Protein
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  4 Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/296,791
;      FILING DATE:  25-AUG-1994
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Trecartin, Richard F.
;      REGISTRATION NUMBER:  31,801
;      REFERENCE/DOCKET NUMBER:  A-59941/RFT/RMS
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1545 amino acids
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;      TOPOLOGY:  unknown
US-08-296-791-4


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;  GENERAL INFORMATION:
;    APPLICANT:  Washington University, et al.
;    TITLE OF INVENTION:  Haemophilus Adherence and Penetration Protein
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  4 Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/10661A
;      FILING DATE:  16-AUG-1995
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/296,791
;      FILING DATE:  25-AUG-1994
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Trecartin, Richard F.
;      REGISTRATION NUMBER:  31,801
;      REFERENCE/DOCKET NUMBER:  FP-59941/RFT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1545 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  unknown
PCT-US95-10661A-4


alignment_scores:
           Quality: 1587.00              Length:   1723
             Ratio:  1.710                Gaps:     47
 Percent Similarity:  53.860  Percent Identity: 26.291

alignment_block:
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 Align seg 1/1  to: PCT-US95-10661A-4  from: 1  to: 1545

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      38 rgAspPheAlaGluAsnLysGlyLysPheSerValGlyAlaThrAsnVal 54

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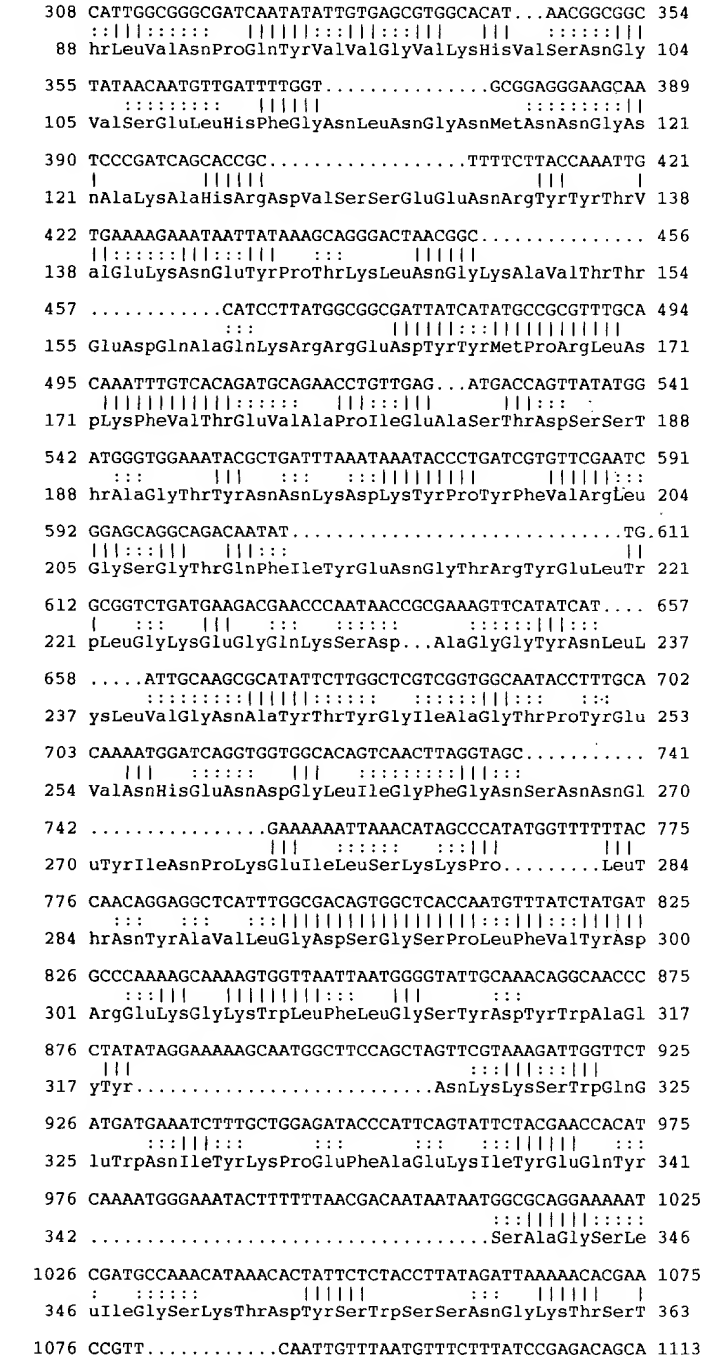

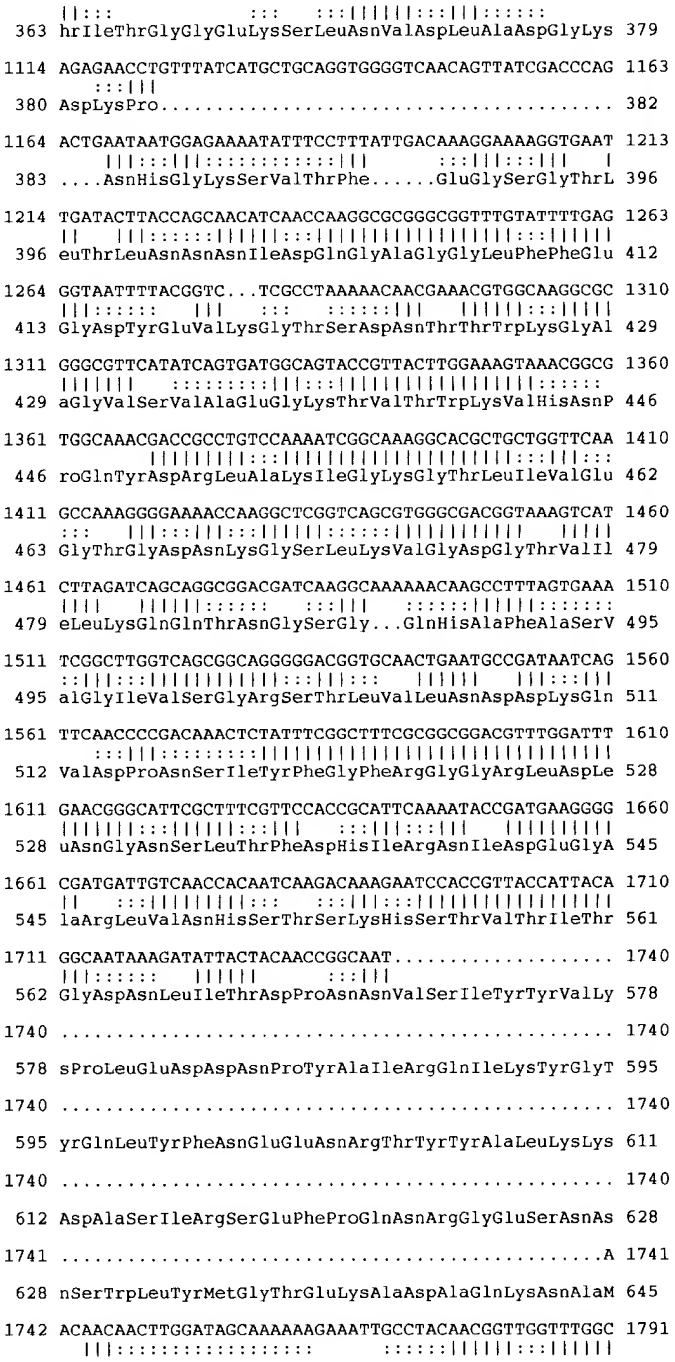

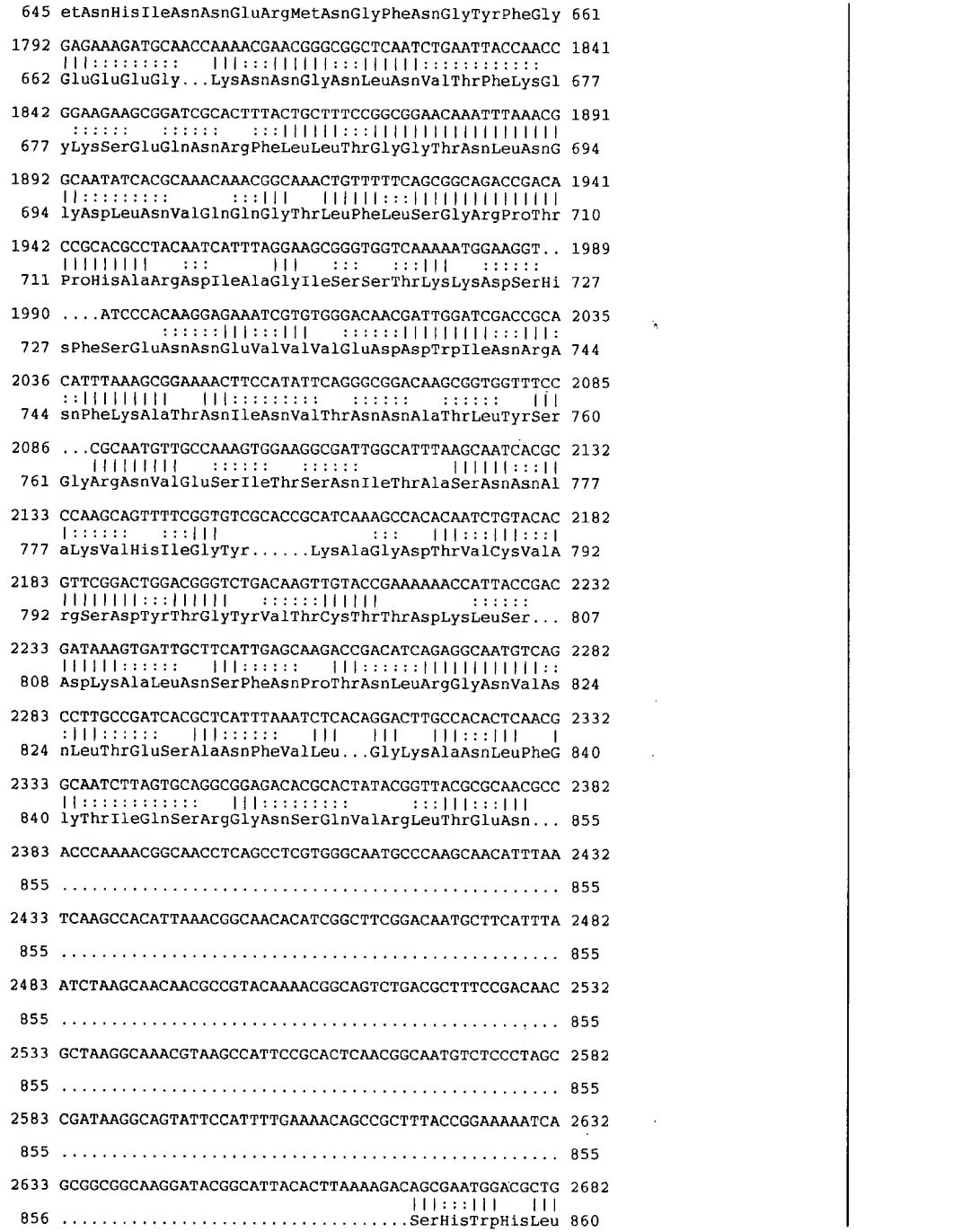
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seq_documentation_block:
; Sequence 5, Application US/08296791
; Patent No. 6245337
;  GENERAL INFORMATION:
;    APPLICANT:  St. Geme III, Joseph W.
;    APPLICANT:  Falkow, Stanley
;    TITLE OF INVENTION:  Haemophilus Adherence and Penetration
;    TITLE OF INVENTION:  Protein
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  4 Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/296,791
;      FILING DATE:  25-AUG-1994
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Trecartin, Richard F.
;      REGISTRATION NUMBER:  31,801
;      REFERENCE/DOCKET NUMBER:  A-59941/RFT/RMS
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1702 amino acids
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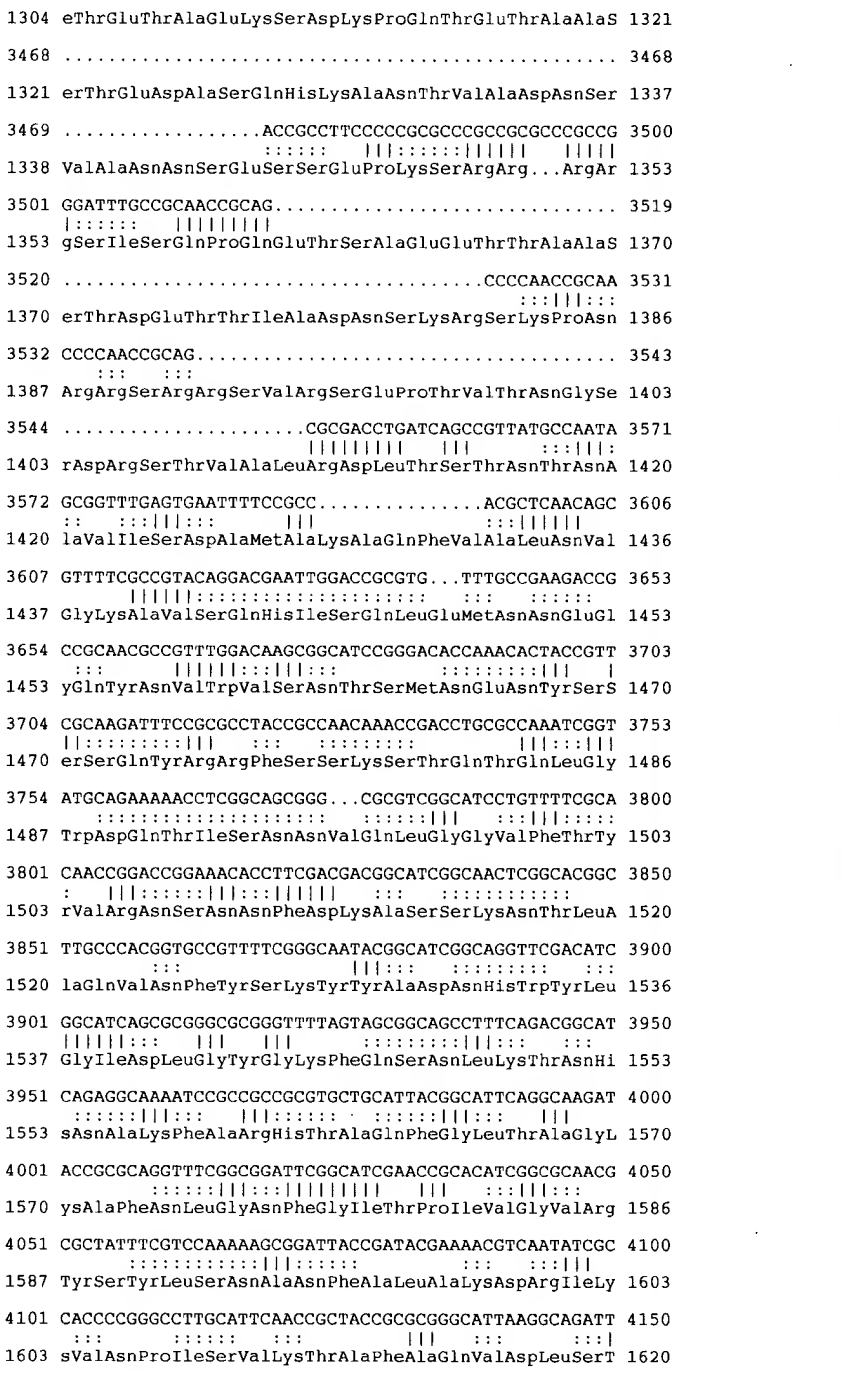
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;  GENERAL INFORMATION:
;    APPLICANT:  Washington University, et al.
;    TITLE OF INVENTION:  Haemophilus Adherence and Penetration Protein
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  4 Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/10661A
;      FILING DATE:  16-AUG-1995
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/296,791
;      FILING DATE:  25-AUG-1994
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Trecartin, Richard F.
;      REGISTRATION NUMBER:  31,801
;      REFERENCE/DOCKET NUMBER:  FP-59941/RFT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1702 amino acids
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;      TOPOLOGY:  unknown
PCT-US95-10661A-5


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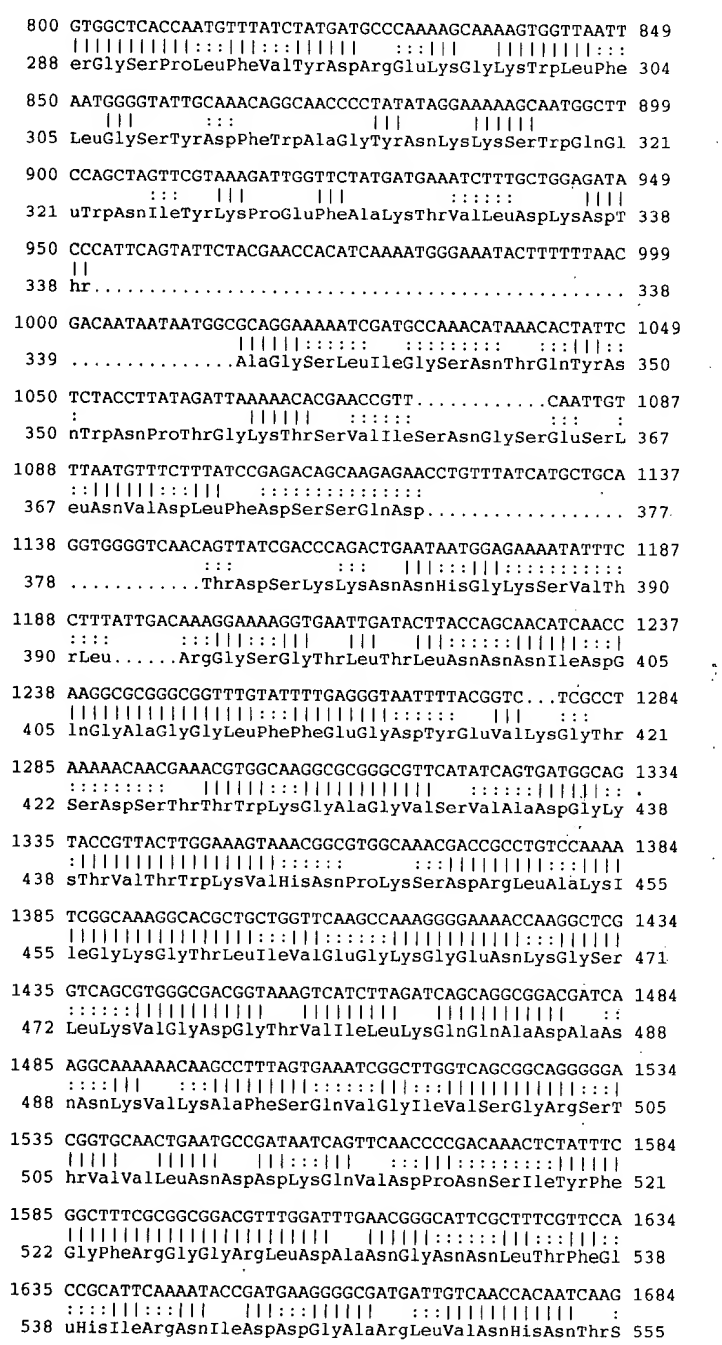
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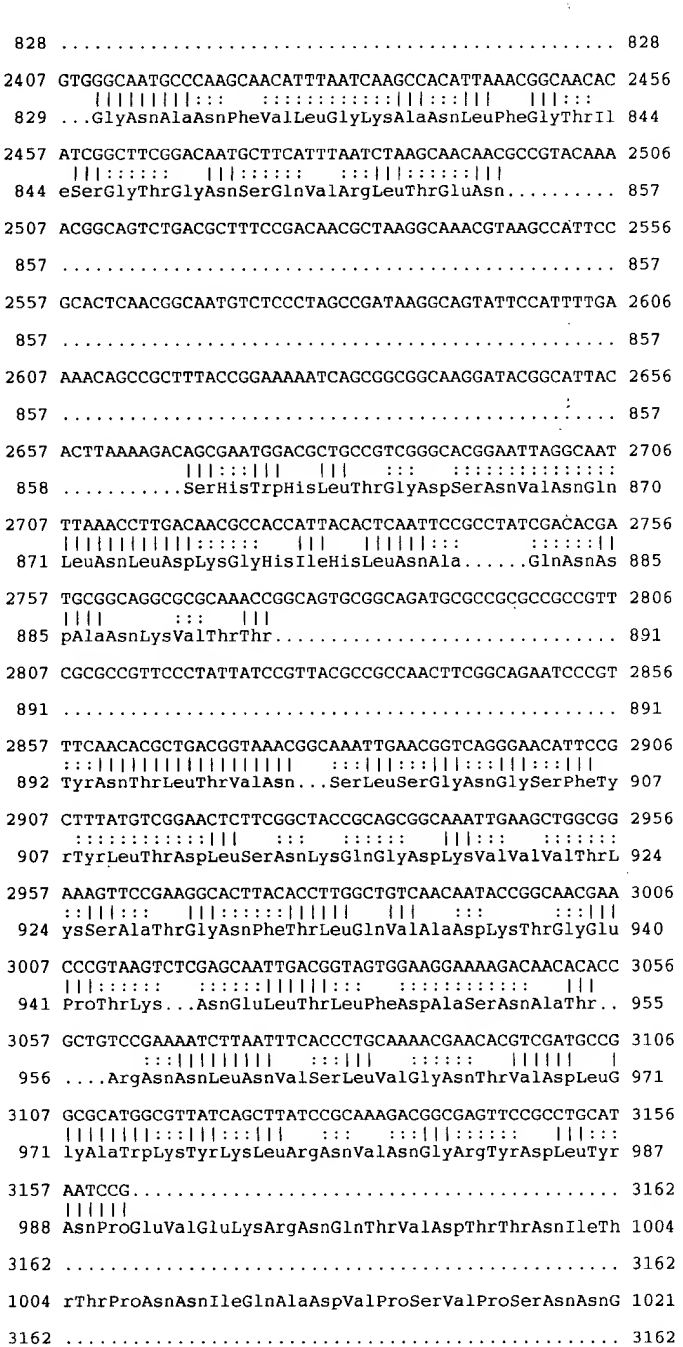
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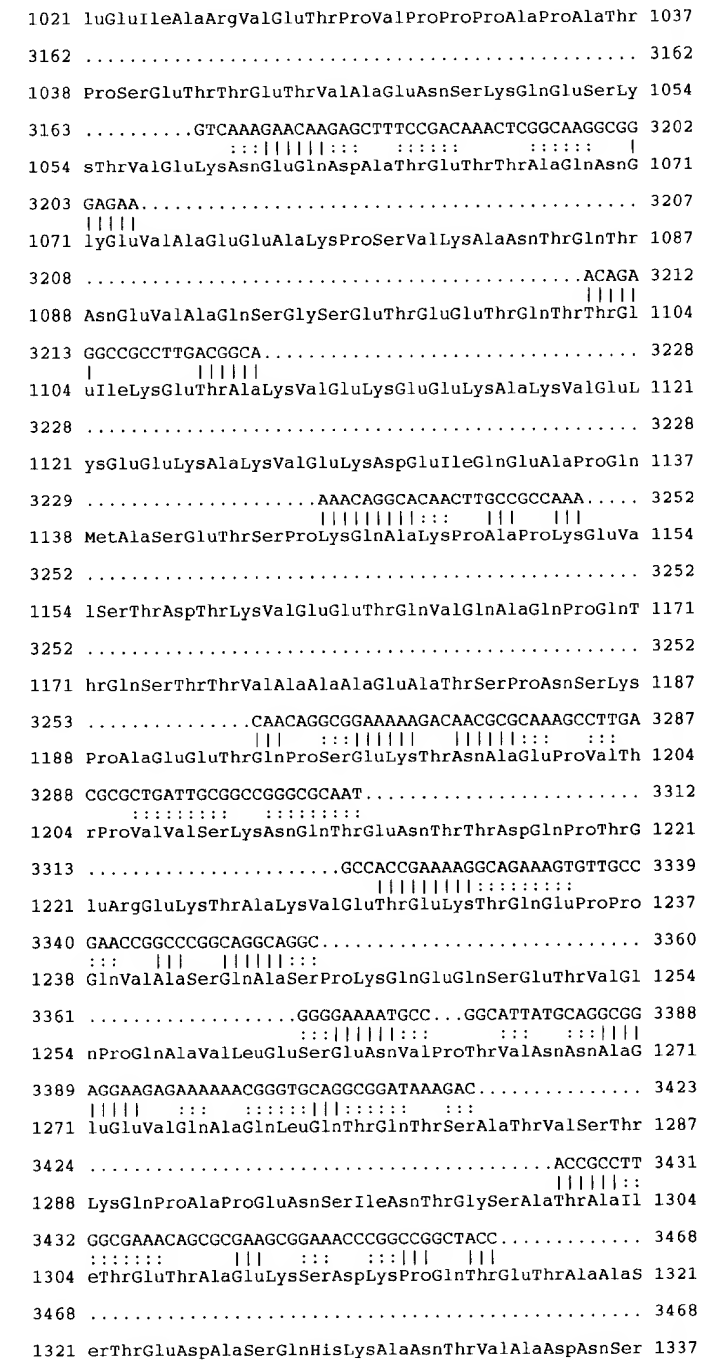
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; NUMBER OF SEQUENCES: 6
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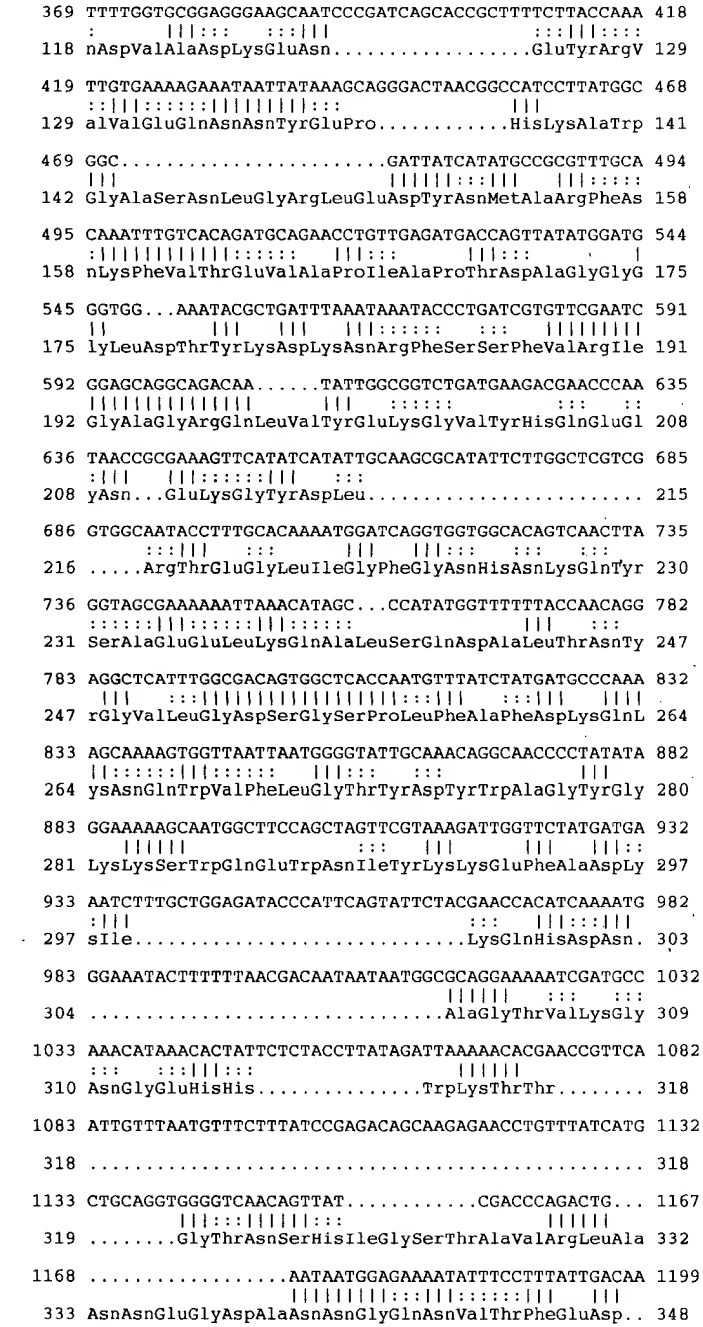

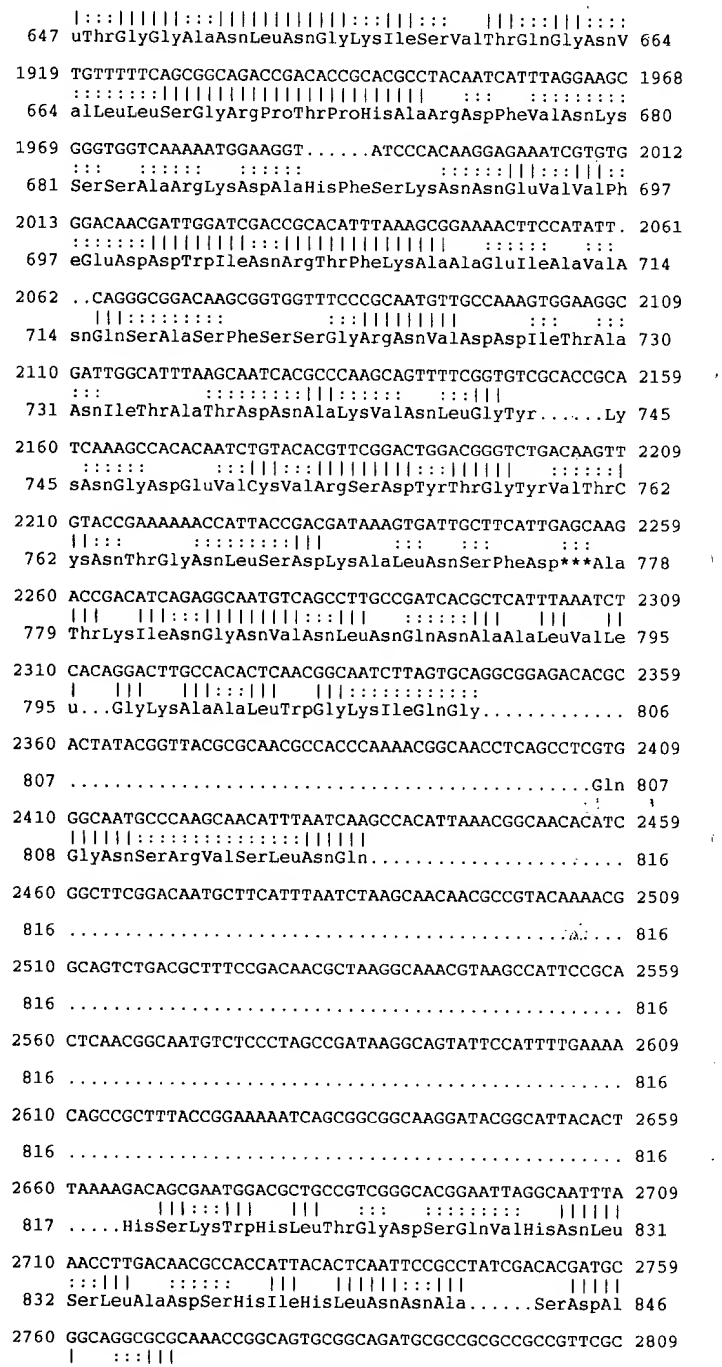
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1302 eGlyGlyValLeuThrTyrSerAspSerGlnHisThrPheAspGlnAla. 1318

3833 TCGGCAACTCGGCACGGCTTGCCCACGGTGCCGTTTTCGGGCAATACGGC 3882
       |||::::::      ::::::::::::   ::::::|||:::|||
1319 ..GlyGlyLysAsnThrPheValGlnAlaAsnLeuTyrGlyLysTyrTyr 1334

3883 ATCGGC...AGGTTCGACATCGGCATCAGCGCGGGCGCGGGTTTTAGTAG 3929
     ::::::     :::   ::::::   :::   |||||||||
1335 LeuAsnAspAlaTrpTyrValAlaGlyAspIleGlyAlaGlySerLeuAr 1351

3930 CGGCAGCCTTTCAGACGGCATCAGAGGCAAAATCCGCCGCCGCCGTGCTGC 3979
      :::   |||:::          ::::::::::::::|||      ::::
1351 gSerArgLeuGlnThrGlnGlnLysAlaAsnPheAsnArgThrSerIleG 1368

3980 ATTACGGCATTCAGGCAAGATACCGCGCAGGTTTCGGCGGATTCGGCATC 4029
     ::   |||:::                    ::::::   |||   |||
1368 lnThrGlyLeuThrLeuGlyAsnThrLeuLysIleAsnGlnPheGluIle 1384

4030 GAACCGCACATCGGCGCAACGCGCTATTTCGTCCAAAAAGCGGATTACCG 4079
       |||       |||              :::::::::||||||||::
1385 ValProSerAlaGlyIleArgTyrSerArgLeuSerSerAlaAspTyrLy 1401

4080 ATACGAAAACGTCAATATCGCCACCCCGGGCCTTGCATTCAACCGCTACC 4129
     :      :::   ::::::   :::   ::::::|||   :::
1401 sLeuGlyAspAspSerValLysValSerSerMetAlaValLysThrLeuT 1418
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4130 GCGCGGGCATTAAGGCAGATTATTCATTCAAACCGGCGCAACACATTTCC 4179
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4180 ATCACGCCTTATTTGAGCCTGTCCTATACCGATGCCGCTTCCGGCAAAGT 4229
     :::   |||   ||||||   :::|||      |||      ||||||
1434 ValLysProLeuLeuSerAlaAlaTyrPhe...AlaAsnTyrGlyLysGl 1449

4230 CCGAACGCGCGTCAATACCGCCCGTATTGGCGCAGGATTTCGGCAAAACCC 4279
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1449 yGlyValAsnValGlyGlyLysSerPheAlaTyrLysAlaAspAsnGlnG 1466

4280 GCAGTGCGGAATGGGGCGTAAACGCCGAAATCAAAGGTTTCACGCTGTCC 4329
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1466 lnGlnTyrSerAlaGlyValAlaLeuLeuTyrArgAsnValThrLeuAsn 1482

4330 CTCCACGCTGCCGCCGCCAAGGGGCCGCAATTGGAAGCGCAGCACAGCGC 4379
     ::::::::::::   :::||||||   ||||||||   |||   |||::
1483 ValAsnGlySerIleThrLysGlyLysGlnLeuGluLysGlnLysSerGl 1499

4380 GGGCATCAAATTAGGCTACCGCTGG 4404
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1499 yGlnIleLysIleGlnIleArgPhe 1507
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seq_documentation_block:
; Sequence 6, Application US/08296791
; Patent No. 6245337
;  GENERAL INFORMATION:
;    APPLICANT:  St. Geme III, Joseph W.
;    APPLICANT:  Falkow, Stanley
;    TITLE OF INVENTION:  Haemophilus Adherence and Penetration
;    TITLE OF INVENTION:  Protein
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  4 Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/296,791
;      FILING DATE:  25-AUG-1994
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Trecartin, Richard F.
;      REGISTRATION NUMBER:  31,801
;      REFERENCE/DOCKET NUMBER:  A-59941/RFT/RMS
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1848 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  unknown
US-08-296-791-6


alignment_scores:
            Quality: 1513.00              Length:   1916
              Ratio:  1.519                Gaps:     60
 Percent Similarity:  51.983   Percent Identity: 25.418

alignment_block:
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US-09-303-518D-653 x US-08-296-791-6 ..

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114 CCAAGCCCGGGCGGGACACACTTATTTCGGCATCAACTACCAATACTATC 163
    |   ::::::|||:::   :::          ::::::||||||  ::::|
 21 oTyrThrGluAlaAlaLeuValArgAspAspValAspTyrGlnIlePheA 38

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 38 rgAspPheAlaGluAsnLysGlyLysPheSerValGlyAlaThrAsnVal 54

214 GAGGTTTACAACAAAAAAGGGGAGTTGGTCGGCAAATCGATGACGAAAGC 263
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 55 GluValArgAspLysLysAsnGlnSerLeuGlySerAlaLeuProAsnGl 71

264 C...CCGATGATTGATTTTTCTGTGGTATCG...CGTAACGGCGTGGCGG 307
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 71 yIleProMetIleAspPheSerValValAspValAspLysArgIleAlaT 88

308 CATTGGCGGGCGATCAATATATTGTGAGCGTGGCACAT...AACGGCGGC 354
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 88 hrLeuValAsnProGlnTyrValValGlyValLysHisValSerAsnGly 104

355 TATAACAATGTTGATTTTGGT.............GCGGAGGGAAGCAA 389
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390 TCCCGATCAGCACCGC.................TTTTCTTACCAAATTG 421
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121 nAlaLysSerHisArgAspValSerSerGluGluAsnArgTyrTyrThrV 138

422 TGAAAAGAAATAATTAT.........................AAAGCA 444
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138 alGluLysAsnAsnPheProThrGluAsnValThrSerPheThrLysGlu 154

445 GGGACTAACGGCCATCCTTATGGCGGCGATTATCATATGCCGCGTTTGCA 494
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155 GluGlnAspAlaGlnLysArgArgGluAspTyrTyrMetProArgLeuAs 171

495 CAAATTTGTCACAGATGCAGAACCTGTTGAG...ATGACCAGTTATATGG 541
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171 pLysPheValThrGluValAlaProIleGluAlaSerThrAlaAsnAsnA 188

542 ATGGGTGGAAATACGCTGATTTAAATAAATACCCTGATCGTGTTCGAATC 591
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592 GGAGCAGGCAGACAATAT............................TG 611
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221 eLeuThrGluLysAspLysGlnGlyAsnLeuLeuArgAsnTrpAspValG 238

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238 lyGlyAspAsnLeuGluLeuValGlyAsnAlaTyrThrTyrGlyIleAla 254

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305 TyrAspArgGluLysGlyLysTrpLeuPheLeuGlySerTyrAspPheTr 321

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321 pAlaGlyTyr.........................AsnLysLysSerT 329

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329 rpGlnGluTrpAsnIleTyrLysHisGluPheAlaGluLysIleTyrGln 345

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346 GlnTyr.................................SerAlaGl 350

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1108 ACAGCAAGAGAACCTGTTTATCATGCTGCAGGTGGGGTCAACAGTTATCG 1157
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384 GlyLysAspLysPro..................................... 388

1158 ACCCAGACTGAATAATGGAGAAAATATTTCCTTTATTGACAAAGGAAAAG 1207
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1405 GTTCAAGCCAAAGGGGAAAACCAAGGCTCGGTCAGCGTGGGCGACGGTAA 1454
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483 rValIleLeuLysGlnLysAlaAspAlaAsnAsnLysValGlnAlaPheS 500

1505 GTGAAATCGGCTTGGTCAGCGGCAGGGGGACGGTGCAACTGAATGCCGAT 1554
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517 LysGlnValAspProAsnSerIleTyrPheGlyPheArgGlyGlyArgLe 533

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533 uAspLeuAsnGlyAsnSerLeuThrPheAspHisIleArgAsnIleAspA 550

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    1751 nProIleSerValLysThrAlaPheAlaGlnValAspLeuSerTyrThrT 1768

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; Sequence 6, Application PC/TUS9510661A
;  GENERAL INFORMATION:
;    APPLICANT:  Washington University, et al.
;    TITLE OF INVENTION:  Haemophilus Adherence and Penetration Protein
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  4 Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/10661A
;      FILING DATE:  16-AUG-1995
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/296,791
;      FILING DATE:  25-AUG-1994
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Trecartin, Richard F.
;      REGISTRATION NUMBER:  31,801
;      REFERENCE/DOCKET NUMBER:  FP-59941/RFT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1848 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  unknown
PCT-US95-10661A-6


alignment_scores:
           Quality: 1513.00            Length:   1916
             Ratio:  1.519               Gaps:     60
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 Percent Similarity:  51.983   Percent Identity: 25.418

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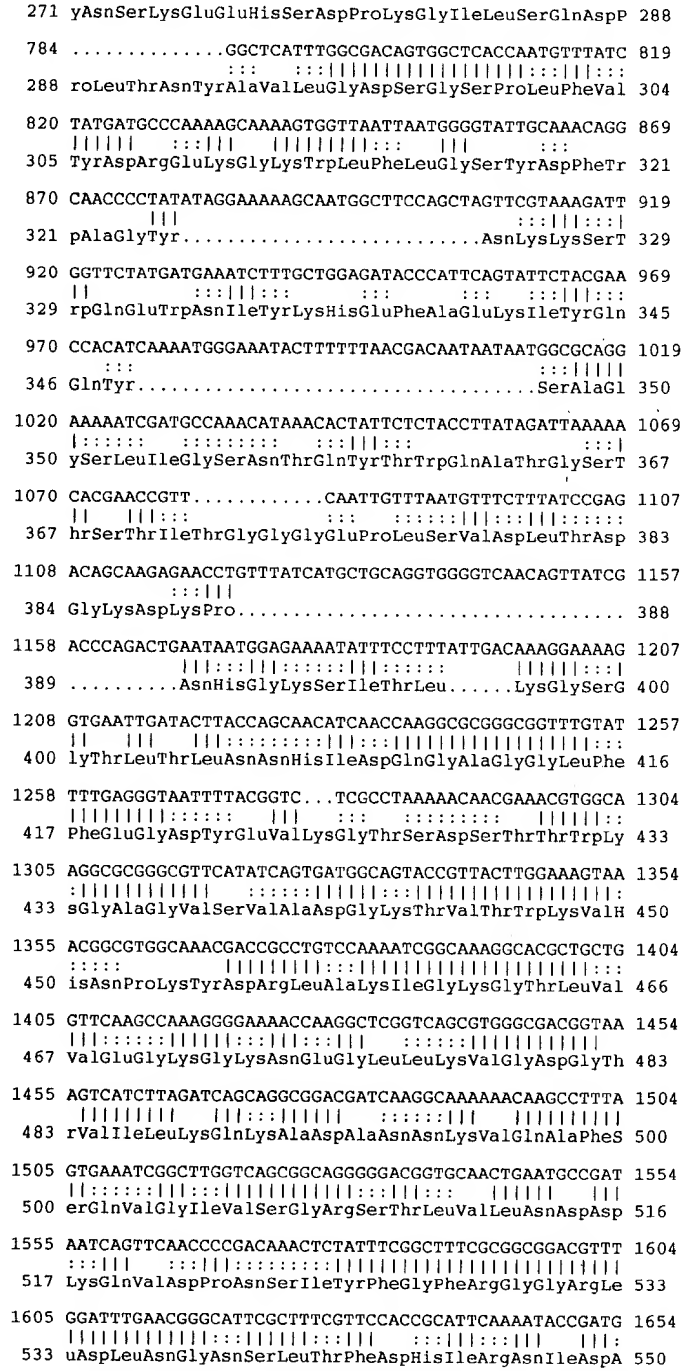
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367 hrSerThrIleThrGlyGlyGluProLeuSerValAspLeuThrAsp 383
1108 ACAGCAAGAGAACCTGTTTATCATGCTGCAGGTGGGGTCAACAGTTATCG 1157
384 GlyLysAspLysPro..... 388
1158 ACCCAGACTGAATAATGGAGAAAATATTTCCTTTATTGACAAAGGAAAAG 1207
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seq_documentation_block:
; Sequence 9, Application US/08728470
; Patent No. 5928651
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5928651-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/728,470
;      FILING DATE:
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-633
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  9:
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;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  1338 amino acids
;       TYPE:  amino acid
;       STRANDEDNESS:  single
;       TOPOLOGY:  linear
US-08-728-470-9


alignment_scores:
            Quality:  308.50              Length:   1542
              Ratio:  0.439                Gaps:     75
 Percent Similarity:  45.525   Percent Identity: 20.169

alignment_block:
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1047 AlaAspSerGlyLysLeuThrSerThrValGlySerThrIleAsnGlyTh 1063

3081 CCTGCAAAACGAACACGTCGATGCCGGCGCATGGCGTTATCAGCTTATCC 3130
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3131 GCAAAGACGGCGAGTTCCGCCTGCATAATCCGGTCAAAGAACAAGAGCTT 3180
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3181 TCCGACAAACTCGGCAAGGCGGGAGAAACAGAGGCCGCCTTGACGGCAAA 3230
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1089 rThrGlyAspLeuThrIleGlyAsnSerAlaLysValGluAla...LysA 1105

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3319 GAAAAGGCAGAAAGTGTT............................GC 3338
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3565 GCCAATAGCGGTTTGAGTGAATTTTCCGCCACGCTCAACAGCGTTTTCGC 3614
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seq_name: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:US-08-719-641-9

seq_documentation_block:

; Sequence 9, Application US/08719641
; Patent No. 6218141
; GENERAL INFORMATION:
; APPLICANT: Barenkamp, Stephen J
; TITLE OF INVENTION: High Molecular Weight Surface Proteins
; TITLE OF INVENTION: of No. 6218141-Typeable Haemophilus
; NUMBER OF SEQUENCES: 10
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Shoemaker and Mattare, Ltd.
; STREET: 2001 Jefferson Davis Hwy., 1203 Crystal Plaza
; STREET: Bldg. 1
; CITY: Arlington
; STATE: Virginia
; COUNTRY: U.S.A.
; ZIP: 22202-0286
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/719,641
; FILING DATE:
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/302,832
; FILING DATE: 16-SEP-1994
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US PCT/US93/02166
; FILING DATE: 16-MAR-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: GB 9205704.1
; FILING DATE: 16-MAR-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Berkstresser, Jerry W
; REGISTRATION NUMBER: 22,651
; REFERENCE/DOCKET NUMBER: 1038-625
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (703) 415-0810
; TELEFAX: (703) 415-0813
; INFORMATION FOR SEQ ID NO: 9:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 1338 amino acids
; TYPE: amino acid
; STRANDEDNESS: single

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;      TOPOLOGY:  linear
US-08-719-641-9


alignment_scores:
           Quality:  308.50              Length:   1542
             Ratio:  0.439                Gaps:     75
 Percent Similarity:  45.525   Percent Identity: 20.169

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; Sequence 9, Application US/08617697
; Patent No. 5977336
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5977336-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  11
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/617,697
;      FILING DATE:  01-APR-1996
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  05-OCT-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-557
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  9:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1599 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
US-08-617-697-9


alignment_scores:
            Quality:  308.50              Length:   1542
              Ratio:  0.439                Gaps:     75
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Percent Similarity: 45.525 Percent Identity: 20.169

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US-09-303-518D-653 x US-08-617-697-9 ..

Align seg 1/1 to: US-08-617-697-9 from: 1 to: 1599

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    555 isLysAsnIleThrLeuGlySer.......................Gly 563

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    564 PheLeuAsnIleThrThrLysGluGlyAspIleAlaPheGluAspLysSe 580

    801 TGGCTCACCAATGTTTATCTATGATGCCCAAAAGCAAAAGTGGTTAATTA 850
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    580 rGlyArgAsnAsnLeuThrIleThrAlaGln................... 590

    851 ATGGGGTATTGCAAACAGGCAACCCCTATATAGGAAAAAGCAATGGCTTC 900
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    591 ..GlyThrIleThrSerGlyAsn..............SerAsnGlyPhe 601

    901 CAGCTAGTTCGTAAAGATTGGTTCTATGATGAAATCTTTGCTGGAGATAC 950
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    602 Arg.....................PheAsnAsnValSerLeuAsnSerLe 611

    951 CCATTCAGTATTCTACGAACCACATCAAAATGGGAAATACTTTTTTAACG 1000
                                        :::|||||||      |||:::|
    611 u..........................GlyGlyLysLeuSerPheThrA 619

   1001 ACAATAATAATGGCGCAGGAAAA.......................... 1023
        ||:::::::::      |||:::
    619 spSerArgGluAspArgGlyArgArgThrLysGlyAsnIleSerAsnLys 635

   1024 ....................................ATCGATGCCAAACA 1037
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    636 PheAspGlyThrLeuAsnIleSerGlyThrValAspIleSerMetLysAl 652

   1038 TAAACACTATTCTCTACCTTATAGATTAAAAACACGAACCGTT....... 1080
              |||      ||||||   |||   ||||||
    652 aProLysValSerTrpPheTyrArgAspLysGlyArgThrTyrTrpAsnV 669

   1081 ..........................CAATTGTTTAATGTTTCTTTATCC 1104
                                   :::   ||||||:::|||:::::
    669 alThrThrLeuAsnValThrSerGlySerLysPheAsnLeuSerIleAsp 685

   1105 GAGACAGCAAGAGAACCTGTTTATCATGCTGCAGGTGGGGTCAACAGTTA 1154
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   1155 TCGACCCAGACTGAATAATGGAGAAAATATTTCCTTTATTGACAAAGGAA 1204
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    692 rGlyProSerIleArgAsnAlaGlu...LeuAsnGlyIleThrPheAsnL 708

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    708 ysAla............ThrPheAsnIleAlaGlnGlySer......... 717

   1255 TATTTTGAGGGTAATTTTACGGTCTCGCCT..............AAAAA 1289
                ::::||||||:::::::::                  |||::
    718 ......ThrAlaAsnPheSerIleLysAlaSerIleMetProPheLysSe 732

   1290 CAACGAAACGTGGCAA......GGCGCGGGCGTTCATATCAGTGATGGCA 1333
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    766 GlyValIleIleLysSerGlnAsnPheAsnValSerGlyGlySerThrLe 782

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946 SerSer...LeuAsnIleThrThrAsnSerAspThrThrTyrArgThrIl 961

1863 ACTGCTTTCCGGCGGAACAAATTTAAACGGCAATATCACGCAAACAAACG 1912
961 e.....................IleLysGlyAsnIleSerAsnLysSerG 971

1913 GCAAACTGTTTTTCAGCGGCAGACCGACACCGCACGCCTACAATCATTTA 1962
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1963 GGAAGCGGGTGGTCAAAAATGGAAGGTATCCCACAAGGAGAAATCGTGTG 2012
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2981 TGGCTGTCAACAATACCGGCAACGAACCCGTAAGTCTCGAGCAATTGACG 3030
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3415 GATAAAGACACCGCCTTGGCGAAACAGCGCGAAGCGGAAACCCGGCCGGC 3464
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seq_name: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:US-08-617-697-10

seq_documentation_block:
; Sequence 10, Application US/08617697
; Patent No. 5977336
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5977336-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  11
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/617,697
;      FILING DATE:  01-APR-1996
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  05-OCT-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-557
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  10:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1600 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
US-08-617-697-10


alignment_scores:
            Quality:  301.50              Length:   1508
              Ratio:  0.433                 Gaps:     71
 Percent Similarity:  46.220   Percent Identity: 19.761

alignment_block:
 US-09-303-518D-653 x US-08-617-697-10   ..

 Align seg 1/1  to: US-08-617-697-10  from: 1  to: 1600
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212 .......AsnLeuIleGlyGlyLysValLysAsnGlu.............. 221

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322 CAA.....................................TATATTGTGAG 335
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271 lyAsn.......................................... 272

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seq_documentation_block:
; Sequence 10, Application US/08728470
; Patent No. 5928651
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5928651-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/728,470
;      FILING DATE:
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-633
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  10:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1529 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
US-08-728-470-10


alignment_scores:
            Quality:  292.50              Length:   1494
              Ratio:  0.415                 Gaps:     77
 Percent Similarity:  47.189   Percent Identity: 20.415

alignment_block:
 US-09-303-518D-653 x US-08-728-470-10   ..

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seq_documentation_block:
; Sequence 10, Application US/08719641
; Patent No. 6218141
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 6218141-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/719,641
;      FILING DATE:
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-SEP-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-625
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  10:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1529 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
US-08-719-641-10


alignment_scores:
            Quality:  292.50              Length:   1494
              Ratio:  0.415                 Gaps:     77
 Percent Similarity:  47.189   Percent Identity: 20.415

alignment_block:
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2945 TGAAGCTGGCGGAAAGTTCCGAAGGCACTTACACCTTGGCT......... 2985
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 925 ....................GluGlyAsnLeuThrIleSerSerAspLys 934

2986 GTCAACAATACCGGCAACGAACCCGTAAGTCTCGAGCAATTGACGGTA.. 3033
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 935 ValAsnIleThr.....................AsnGlnIleThrIleLy 944

3034 .......GTGGAA...GGAAAAGACAACACACCGCTGTCCGAAAATCTTA 3073
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 944 sAlaGlyValGluGlyGlyArgSerAspSerSerGluAlaGluAsnAlaA 961

3074 ATTTCACCCTGCAAAACGAACACGTCGATGCCGGCGCATGGCGTTATCAG 3123
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 961 snLeuThrIleGln................................... 965

3124 CTTATCCGCAAAGACGGCGAGTTCCGCCTGCATAATCCGGTCAAAGAACA 3173
                                                :::||||||
 966 ....................................ThrLysGluLe 969

3174 AGAGCTTTCCGACAAACTCGGCAAGGCGGGAGAAACAGAGGCCGCCTTGA 3223
      :::|||:::      |||:::   :::|||   :::::|||   :::|
 969 uLysLeuAlaGlyAspLeuAsnIleSerGlyPheAsnLysAlaGluIleT 986

3224 CGGCAAAACAGGCACAACTTGCCGCCAAACAACAGGCGGAAAAAGACAAC 3273
     ||||||||::::::::      :::      :::|||:::      |||
 986 hrAlaLysAsnGlySerAspLeuThrIleGlyAsnAlaSerGlyGlyAsn 1002

3274 GCGCAAAGC.......................CTTGACGCGCTGATTGC 3299
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1003 AlaAspAlaLysLysValThrPheAspLysValLysAspSerLysIleSe 1019

3300 GGCC...GGGCGCAATGCCACCGAAAAGGCAGAA...AGTGTTGCCGAAC 3343
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seq_name: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:US-08-460-269C-6

seq_documentation_block:
; Sequence 6, Application US/08460269C
; Patent No. 6197548
;   GENERAL INFORMATION:
;        APPLICANT: CLARE, JEFFREY J.
;                   ROMANOS, MICHAEL A.
;        TITLE OF INVENTION: EXPRESSION OF HETEROLOGOUS PROTEIN IN
;                            YEAST
;        NUMBER OF SEQUENCES: 17
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Millen, White, Zelano & Branigan, P.C.
;             STREET: 2200 Clarendon Blvd., Suite 1400
;             CITY: ARLINGTON
;             STATE: VA
;             COUNTRY: USA
;             ZIP: 22201
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/08/460,269C
;             FILING DATE: 02-Jun-1995
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Lebovitz, Richard M.
;             REGISTRATION NUMBER: 37,067
;             REFERENCE/DOCKET NUMBER: Popov-2
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: (703) 243-6333
;             TELEFAX: (703) 243-6410

;   INFORMATION FOR SEQ ID NO: 6:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 922 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: protein
;        SEQUENCE DESCRIPTION: SEQ ID NO: 6:
US-08-460-269C-6


alignment_scores:
           Quality:  275.50            Length:   1162
             Ratio:  0.566               Gaps:     54
 Percent Similarity:  41.910   Percent Identity: 21.687

alignment_block:
 US-09-303-518D-653 x US-08-460-269C-6   ..

 Align seg 1/1  to: US-08-460-269C-6  from: 1  to: 922

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     134 ArgAspAspAspGlyIleAlaLeuTyrValAla......GlyGluGln.. 147

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     148 ..............................AlaGlnAlaSerIleA 153

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     153 laAspSerThrLeuGlnGlyAlaGlyGlyValArgValGluArgGlyAla 169

    1894 AATATCACGCAAACAAACGGCAAACTGTTTTTCAGCGGCAGACCGACACC 1943
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 184 .............HisIleGlyThrLeuGlnProLeuGlnProGluAspL 196

1991 TCCCACAAGGAGAAATCGTGTGGGACAACGATTGGATCGACCGC...... 2034
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 196 euProProSerArgValValLeuGlyAspThrSerValThrAlaValPro 212

2035 ..............................ACATTTAAAGCGGAAAACTTCCA 2057
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 213 AlaSerGlyAlaProAlaAlaValPheValPheGlyAlaAsnGluLeuTh 229

2058 TATTCAGGGCGGACAAGCGGTGGTTTCCCGCAATGTTGCCAAAGTGGAAG 2107
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 229 rValAspGlyGly..................................... 233

2108 GCGATTGGCATTTAAGCAATCACGCCCAAGCAGTTTTCGGTGTCGCACCG 2157
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2258 AGACCGACATCAGAGGCAATGTCAGCCTTGCCGATCACGCTCATTTAAAT 2307
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2541 AAAC..................................GTAAGCCATT 2554
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2755 GATGCGGCAGGCGCGCAAACCGGCAGTGCGGCAGATGCGCCGCGCCGCCG 2804
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2805 TTCGCGCCGTTCCCTATTATCCGTTACGCCGCCAACTTCGGCAGAATCCC 2854
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 450 aSerAspGlySer...ValAspPheGlnGlnProAlaGluAla...GlyA 465

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seq_name: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:US-08-038-682-4

seq_documentation_block:
; Sequence 4, Application US/08038682
; Patent No. 5549897
;  GENERAL INFORMATION:
;    APPLICANT:  BARENKAMP, STEPHEN J
;    APPLICANT:  ST. GEME III, JOSEPH W
;    TITLE OF INVENTION:  HIGH MOLECULAR WEIGHT SURFACE PROTEINS
;    TITLE OF INVENTION:  OF NON-TYPEABLE HAEMOPHILUS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/038,682
;      FILING DATE:  16-MAR-1993
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  BERKSTRESSER, JERRY W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-293
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1477 amino acids
;      TYPE:  amino acids
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-038-682-4


alignment_scores:
            Quality:  274.50              Length:   1488
              Ratio:  0.419                 Gaps:     73
 Percent Similarity:  44.019   Percent Identity: 19.220

alignment_block:
 US-09-303-518D-653 x US-08-038-682-4   ..

 Align seq 1/1  to: US-08-038-682-4  from: 1  to: 1477

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     199 AsnHisGlyLeuIleThrValGly...LysAspGlySerVal........ 211

     228 AAAAGGGGAGTTGGTCGGCAAATCGATGACGAAAGCCCCGATGATTGATT 277
                 :::|||:::|||   ::::::   :::
     212 .......AsnLeuIleGlyGlyLysValLysAsnGlu............. 221

     278 TTTCTGTGGTATCGCGTAACGGC......GTGGCGGCATTGGCGGGCGAT 321
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322 CAA.....TATATTGTGAG 335
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386 GCAAT.....CCCGATCAGCACCGCTTTTCT 411
271 lyAsnIleAsnValArgAlaAlaThrIleArgAsnGlnGlyLysLeuSer 287

412 TACCAAATTGTGAAAAGAAATAATTATAAAGCAGGGACTAACGGCCATCC 461
288 AlaAspSerValSerLysAsp......LysSerGly..... 297

462 TTATGGCGGCGATTATCATATGCCGCGTTTGCACAAATTTGTCACAGATG 511
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512 CAGAACCTGTTGAG.....ATGACCAGTTATATGGAT 543
303 laLysGluGlyGluAlaGluIleGlyGlyValIleSerAlaGlnAsnGln 319

544 GGGTGGAAATACGCTGATTTAAATAAATACCCTGATCGTGTT.....CG 587
320 GlnAlaLysGlyGlyLysLeuMetIleThrGlyAspLysValThrLeuLy 336

588 AATCGGAGCA.....GGCAGACAATATT 610
336 sThrGlyAlaValIleAspLeuSerGlyLysGluGlyGlyGluThrTyrL 353

611 GGCGGTCTGATGAA...GACGAACCCAATAAC..... 639
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640 .....CGCGAAAGTTCATATCATATTGCAAGC..... 666
370 LysThrSerLeuGluLysGlySerThrIleAsnValSerGlyLysGluLy 386

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386 sGlyGlyPheAlaIleValTrpGlyAspIleAlaLeuIleAspGlyAsnI 403

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403 leAsnAlaGln...GlySerGly..... 409

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419 uThrSerGlyHisAspLeuPheIleLysAsp..... 429

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508 .....ValAsnSer.....SerIleAsn 513

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   3600 CAACAGCGTTTTCGCCGTACAGGACGAATTGGACCGCGTGTTTGCCGAAG 3649
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   3700 CGTTCGC...AAGATTTCCGCGCCTACCGCCAACAAACCGACCTGCGCCA 3746
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seq_name: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:US-08-302-832-4

seq_documentation_block:
; Sequence 4, Application US/08302832
; Patent No. 5603938
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5603938-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/302,832
;      FILING DATE:  16-SEP-1994
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US pct/us93/02166
;      FILING DATE:  16-MAR-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-404
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1477 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
US-08-302-832-4


alignment_scores:
            Quality:  274.50              Length:   1488
              Ratio:  0.419                 Gaps:     73
 Percent Similarity:  44.019   Percent Identity: 19.220

alignment_block:
 US-09-303-518D-653 x US-08-302-832-4   ..

 Align seg 1/1  to: US-08-302-832-4  from: 1  to: 1477

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                 :::|||:::|||   ::::::   :::
     212 .......AsnLeuIleGlyGlyLysValLysAsnGlu............. 221

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           :::|||:::|||   ||||||      ::::::   ||||||||||:::
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611 SerLeuAsnGly..... ThrGlyLy 617
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1756 ..... AGCAAAAAAGAAATTGCC 1773
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1009 LysGlnIleThrIleLysLysGlyIleAspGlyGluAs 1021
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1035 1035
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1136 ThrSerLeuLysThrValAsnIleThrAlaSerGluLysValThrThr.T 1152
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seq_documentation_block:
; Sequence 4, Application US/08530198
; Patent No. 5869065
;  GENERAL INFORMATION:
;    APPLICANT:  BARENKAMP, STEPHEN J
;    APPLICANT:  ST. GEME III, JOSEPH W
;    TITLE OF INVENTION:  HIGH MOLECULAR WEIGHT SURFACE PROTEINS
;    TITLE OF INVENTION:  OF NON-TYPEABLE HAEMOPHILUS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/530,198
;      FILING DATE:  13-DEC-1995
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  BERKSTRESSER, JERRY W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  JWB-1186
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1477 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-530-198-4


alignment_scores:
            Quality:  274.50              Length:   1488
              Ratio:  0.419                 Gaps:     73
 Percent Similarity:  44.019   Percent Identity: 19.220

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seq_name: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:US-08-469-880-4

seq_documentation_block:
; Sequence 4, Application US/08469880
; Patent No. 5876733
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J.
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5876733-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/469,880
;      FILING DATE:  06-JUN-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-SEP-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-516 MIS:vg
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1477 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
US-08-469-880-4


alignment_scores:
            Quality:  274.50            Length:   1488
              Ratio:  0.419               Gaps:     73
 Percent Similarity:  44.019   Percent Identity: 19.220
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alignment_block:
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seq_documentation_block:
; Sequence 4, Application US/08728470
; Patent No. 5928651
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5928651-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/728,470
;      FILING DATE:
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-633
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1477 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
US-08-728-470-4


alignment_scores:
            Quality:  274.50              Length:   1488
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 Percent Similarity:  44.019   Percent Identity: 19.220

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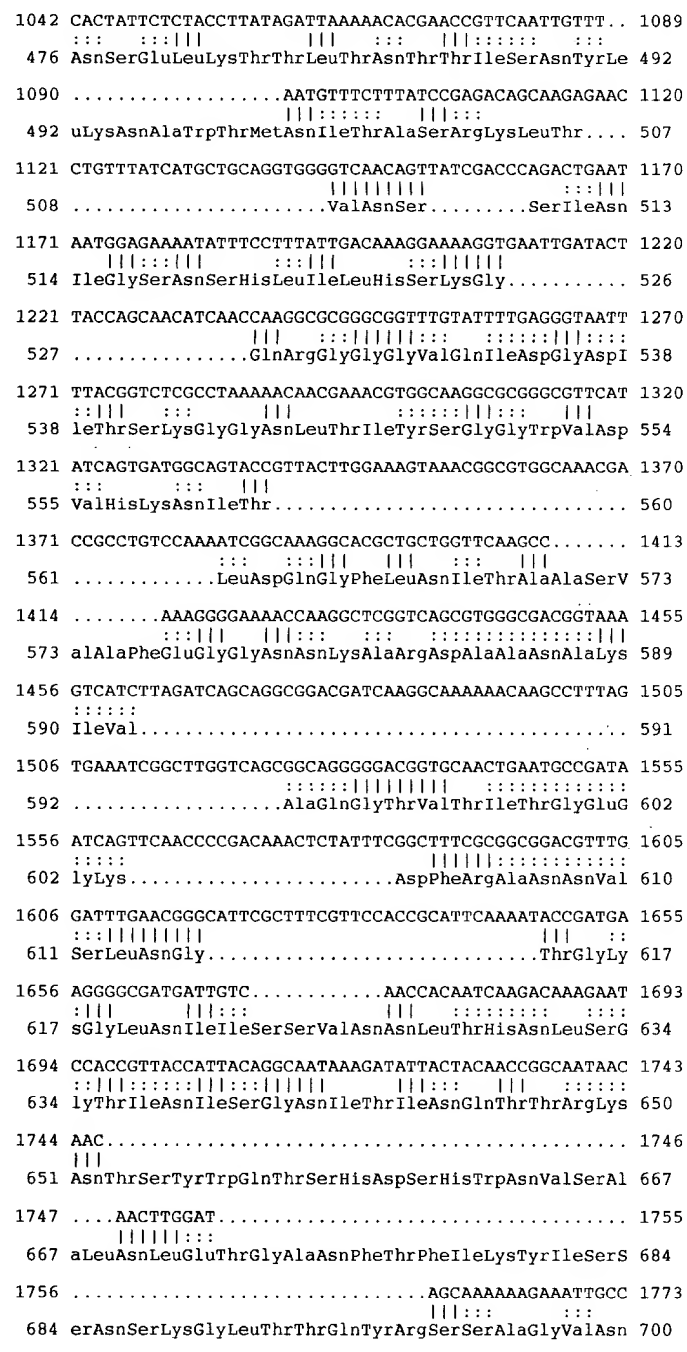
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seq_documentation_block:
; Sequence 4, Application US/08617697
; Patent No. 5977336
; GENERAL INFORMATION:
; APPLICANT: Barenkamp, Stephen J
; TITLE OF INVENTION: High Molecular Weight Surface Proteins
; TITLE OF INVENTION: of No. 5977336-Typeable Haemophilus
; NUMBER OF SEQUENCES: 11
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Shoemaker and Mattare, Ltd.
; STREET: 2001 Jefferson Davis Hwy., 1203 Crystal Plaza
; STREET: Bldg. 1
; CITY: Arlington
; STATE: Virginia

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;       COUNTRY:  U.S.A.
;       ZIP:  22202-0286
;     COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  PatentIn Release #1.0, Version #1.30
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/08/617,697
;       FILING DATE:  01-APR-1996
;       CLASSIFICATION:  424
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  US 08/302,832
;       FILING DATE:  05-OCT-1994
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  US PCT/US93/02166
;       FILING DATE:  16-MAR-1993
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Berkstresser, Jerry W
;       REGISTRATION NUMBER:  22,651
;       REFERENCE/DOCKET NUMBER:  1038-557
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  (703) 415-0810
;       TELEFAX:  (703) 415-0813
;   INFORMATION FOR SEQ ID NO:  4:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  1477 amino acids
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;       STRANDEDNESS:  single
;       TOPOLOGY:  linear
US-08-617-697-4


alignment_scores:
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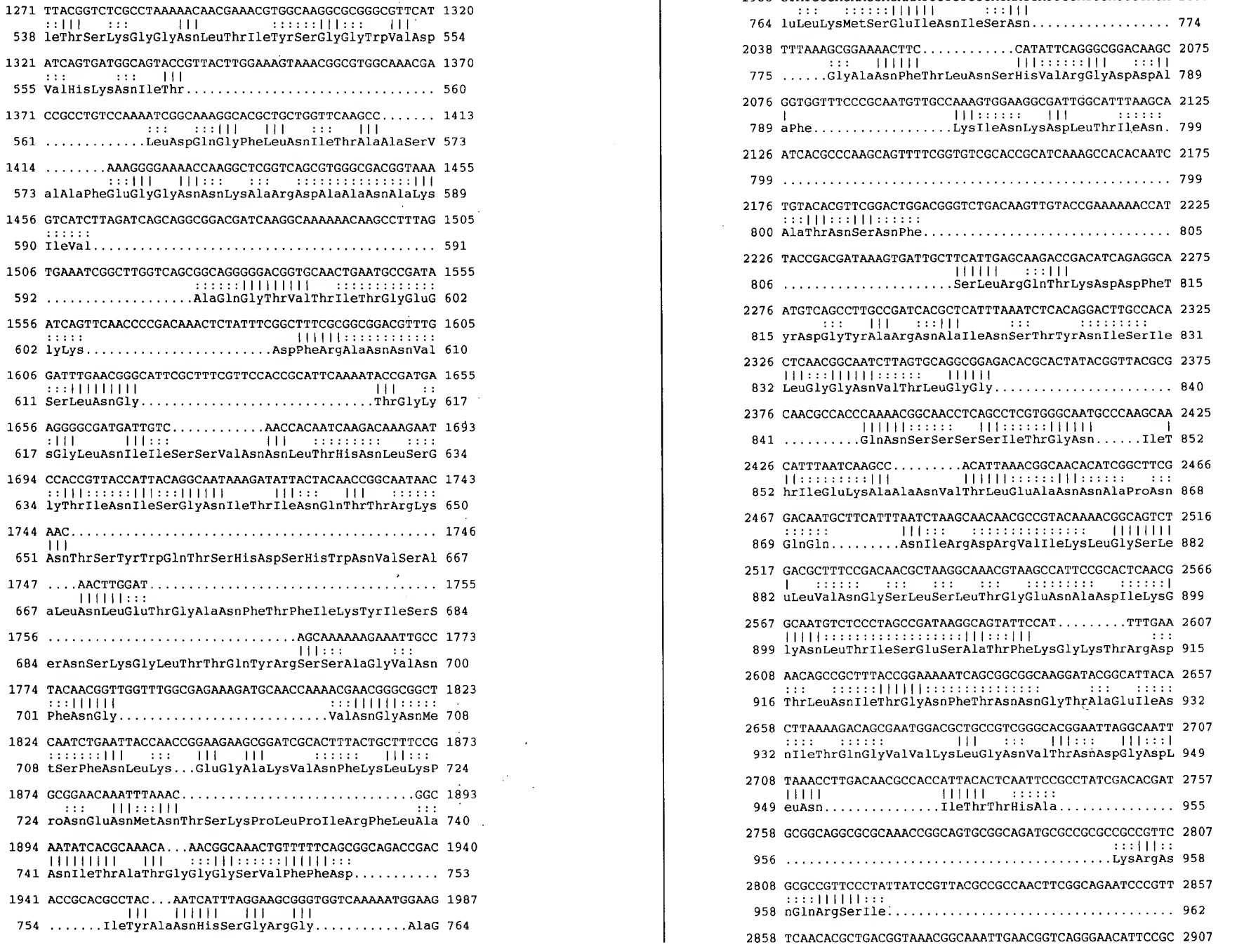

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seq_name: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:US-08-719-641-4

seq_documentation_block:
; Sequence 4, Application US/08719641
; Patent No. 6218141
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 6218141-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/719,641
;      FILING DATE:
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-SEP-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
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;      FILING DATE:  16-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-625
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1477 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
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US-08-719-641-4


alignment_scores:
            Quality:  274.50              Length:   1488
              Ratio:  0.419                Gaps:     73
 Percent Similarity:  44.019   Percent Identity: 19.220

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 US-09-303-518D-653 x US-08-719-641-4   ..

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     561 .............LeuAspGlnGlyPheLeuAsnIleThrAlaAlaSerV 573

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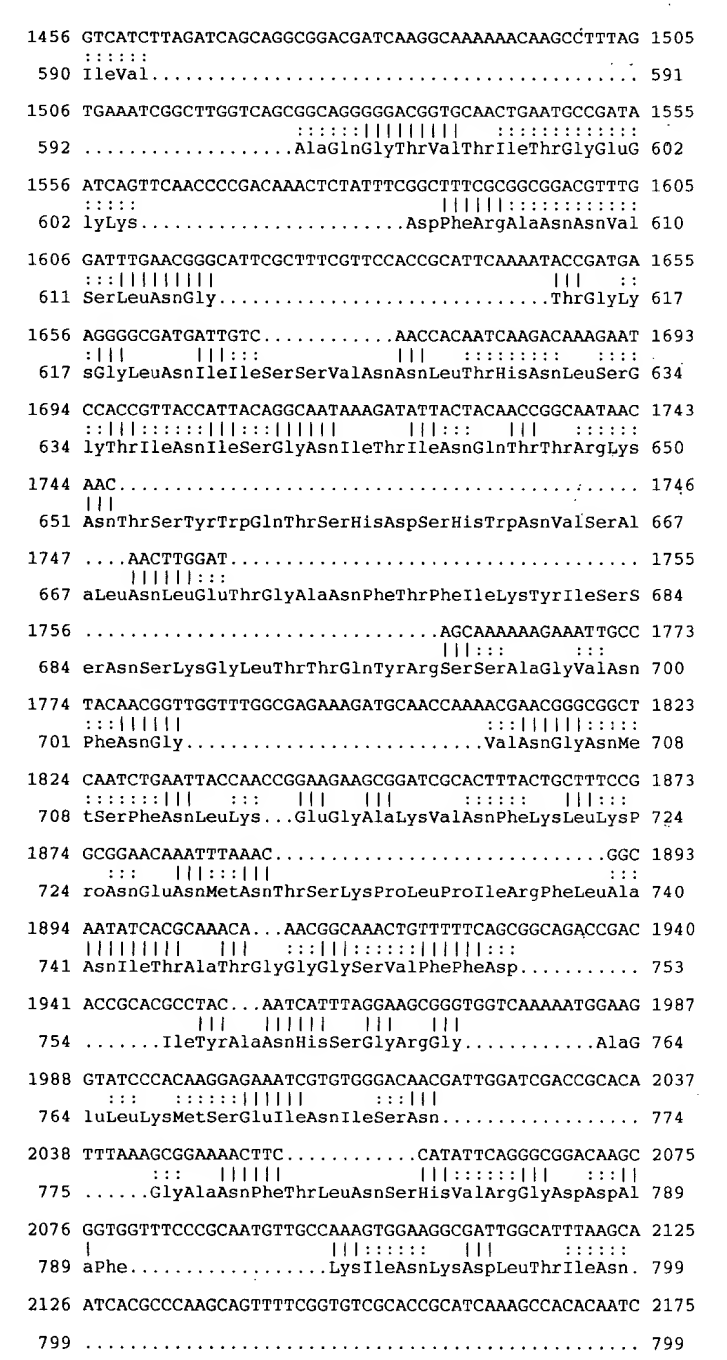
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seq_documentation_block:
; Sequence 4, Application US/08460269C
; Patent No. 6197548
;   GENERAL INFORMATION:
;        APPLICANT: CLARE, JEFFREY J.
;                   ROMANOS, MICHAEL A.
;        TITLE OF INVENTION: EXPRESSION OF HETEROLOGOUS PROTEIN IN
;                            YEAST
;        NUMBER OF SEQUENCES: 17
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Millen, White, Zelano & Branigan, P.C.
;             STREET: 2200 Clarendon Blvd., Suite 1400
;             CITY: ARLINGTON
;             STATE: VA
;             COUNTRY: USA
;             ZIP: 22201
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/08/460,269C
;             FILING DATE: 02-Jun-1995
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Lebovitz, Richard M.
;             REGISTRATION NUMBER: 37,067
;             REFERENCE/DOCKET NUMBER: Popov-2
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: (703) 243-6333
;             TELEFAX: (703) 243-6410
;   INFORMATION FOR SEQ ID NO: 4:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 911 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: protein
;        SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-08-460-269C-4


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seq_documentation_block:
; Sequence 2, Application US/08460269C
; Patent No. 6197548
;   GENERAL INFORMATION:
;        APPLICANT: CLARE, JEFFREY J.
;                   ROMANOS, MICHAEL A.
;        TITLE OF INVENTION: EXPRESSION OF HETEROLOGOUS PROTEIN IN
;                            YEAST
;        NUMBER OF SEQUENCES: 17
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Millen, White, Zelano & Branigan, P.C.
;             STREET: 2200 Clarendon Blvd., Suite 1400
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;             CITY: ARLINGTON
;             STATE: VA
;             COUNTRY: USA
;             ZIP: 22201
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/08/460,269C
;             FILING DATE: 02-Jun-1995
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Lebovitz, Richard M.
;             REGISTRATION NUMBER: 37,067
;             REFERENCE/DOCKET NUMBER: Popov-2
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: (703) 243-6333
;             TELEFAX: (703) 243-6410
;    INFORMATION FOR SEQ ID NO: 2:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 910 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: protein
;        SEQUENCE DESCRIPTION: SEQ ID NO: 2:
US-08-460-269C-2


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alignment_block:
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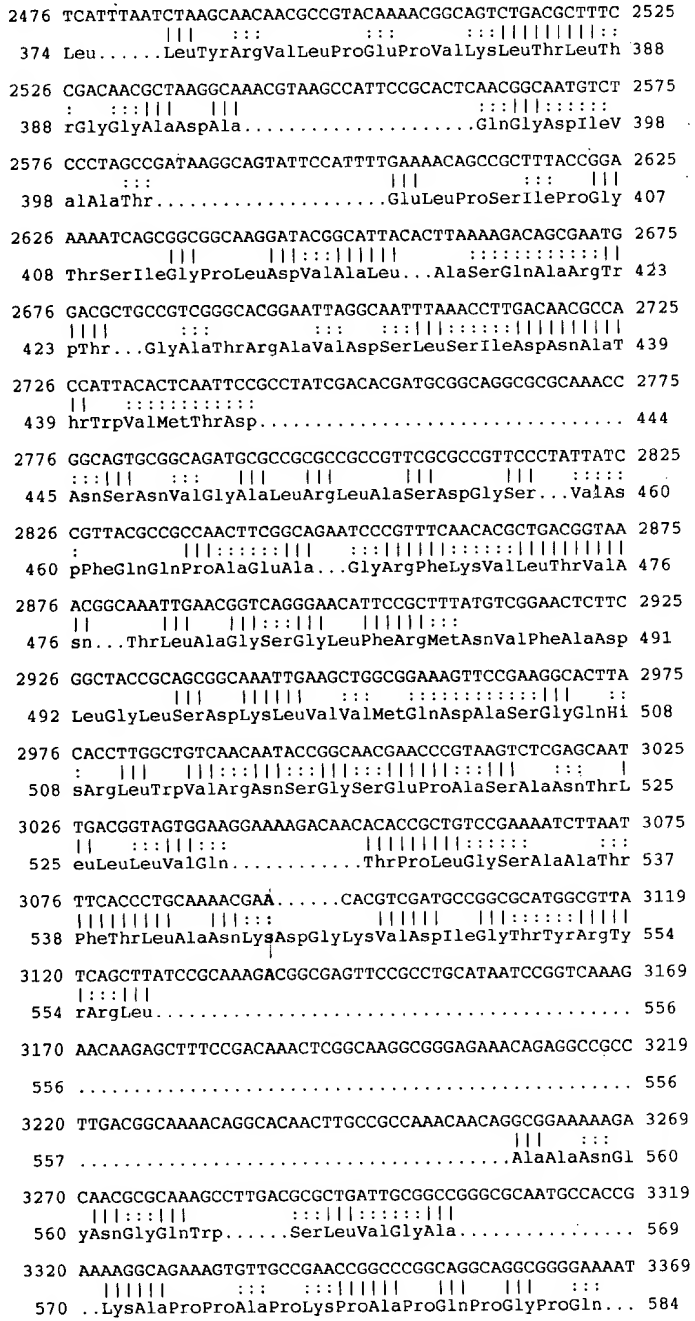
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seq_documentation_block:
; Sequence 2, Application US/08038682
; Patent No. 5549897
;  GENERAL INFORMATION:
;     APPLICANT:  BARENKAMP, STEPHEN J
;     APPLICANT:  ST. GEME III, JOSEPH W
;     TITLE OF INVENTION:  HIGH MOLECULAR WEIGHT SURFACE PROTEINS
;     TITLE OF INVENTION:  OF NON-TYPEABLE HAEMOPHILUS
;     NUMBER OF SEQUENCES:  8
;     CORRESPONDENCE ADDRESS:
;       ADDRESSEE:  Shoemaker and Mattare, Ltd
;       STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;       STREET:  Bldg. 1
;       CITY:  Arlington
;       STATE:  Virginia
;       COUNTRY:  U.S.A.
;       ZIP:  22202-0286
;     COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  PatentIn Release #1.0, Version #1.25
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/08/038,682
;       FILING DATE:  16-MAR-1993
;       CLASSIFICATION:  424
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  BERKSTRESSER, JERRY W
;       REGISTRATION NUMBER:  22,651
;       REFERENCE/DOCKET NUMBER:  1038-293
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  (703) 415-0810
;       TELEFAX:  (703) 415-0813
;   INFORMATION FOR SEQ ID NO:  2:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  1536 amino acids
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;       STRANDEDNESS:  single
;       TOPOLOGY:  linear
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US-08-038-682-2


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; Patent No. 5603938
;  GENERAL INFORMATION:
;     APPLICANT:  Barenkamp, Stephen J
;     TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;     TITLE OF INVENTION:  of No. 5603938-Typeable Haemophilus
;     NUMBER OF SEQUENCES:  8
;     CORRESPONDENCE ADDRESS:
;       ADDRESSEE:  Shoemaker and Mattare, Ltd.
;       STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;       STREET:  Bldg. 1
;       CITY:  Arlington
;       STATE:  Virginia
;       COUNTRY:  U.S.A.
;       ZIP:  22202-0286
;     COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  PatentIn Release #1.0, Version #1.30
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/08/302,832
;       FILING DATE:  16-SEP-1994
;       CLASSIFICATION:  435
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  GB 9205704.1
;       FILING DATE:  16-MAR-1992
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  US pct/us93/02166
;       FILING DATE:  16-MAR-1993
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Berkstresser, Jerry W
;       REGISTRATION NUMBER:  22,651
;       REFERENCE/DOCKET NUMBER:  1038-404
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  (703) 415-0810
;       TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  2:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  1536 amino acids
;       TYPE:  amino acid
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;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA (genomic)
US-08-302-832-2


alignment_scores:
            Quality:  265.00              Length:   1297
              Ratio:  0.438                Gaps:     73
 Percent Similarity:  46.646   Percent Identity: 21.126

alignment_block:
 US-09-303-518D-653 x US-08-302-832-2   ..

 Align seg 1/1  to: US-08-302-832-2  from: 1  to: 1536

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    199 AsnHisGlyLeuIleThrValGly...LysAspGlySerVal........ 211

    228 AAAAGGGGAGTTGGTCGGCAAATCGATGACGAAAGCCCCGATGATTGATT 277
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    212 .......AsnLeuIleGlyGlyLysValLysAsnGlu............. 221

    278 TTTCTGTGGTATCGCGTAACGGC......GTGGCGGCATTGGCGGGCGAT 321
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    222 ..GlyValIleSerValAsnGlyGlySerIleSerLeuLeuAlaGlyGln 237

    322 CAA.....................................TATATTGTGAG 335
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    238 LysIleThrIleSerAspIleIleAsnProThrIleThrTyrSerIleAl 254

    336 CGTGGCACATAACGGCGGCTATAACAATGTTGATTTTGGTGCGGAGGGAA 385
        ::::   :::|||   :::   |||      |||:::   |||:::|||:
    254 aAlaProGluAsnGluAlaValAsnLeuGlyAspIlePheAlaLysGlyG 271

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    412 TACCAAATTGTGAAAAGAAATAATTATAAAGCAGGGACTAACGGCCATCC 461
          :::   |||:::::::::      |||:::|||
    288 AlaAspSerValSerLysAsp......LysSerGly.............. 297

    462 TTATGGCGGCGATTATCATATGCCGCGTTTGCACAAATTTGTCACAGATG 511
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    298 ..................................AsnIleValLeuSerA 303

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    695 CCTTTGCACAAAATGGATCAGGTGGTGGCACAGTCAACTTAGGTAGCGAA 744

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410 ....................AspIleAlaLysThrGlyGlyPheValGl 419

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436 ..................LysGluTrpLeuLeuAsp............Ph 442

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442 eAspAsnValSerIleAsnAlaGluThrAlaGlyArgSerAsnThrSerG 459

995 TTAACGACAATAATAATGGCGCAGGAAAAATCGATGCCAAACATAAACAC 1044
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459 luAspAspGluTyrThrGlySerGly..................AsnSer 469

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1095 TTCTTTATCCGAG.............................ACAGCAA 1114
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1115 GAGAACCTGTTTAT..................................... 1128
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1129 ..................CATGCTGCAGGTGGGGTCAACAGTTATCGACC 1160
                        :::::::::||||||||||
519 ThrLeuTrpSerGluGlyArgSerGlyGlyGlyVal.............. 530

1161 CAGACTGAATAAT.........................GGAGAAAATA 1183
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562 SerLeuGlyAla..............GlnGlyAsnIleAsnIleThrAl 573

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606 ValSer.........LeuAsnGlyThrGlySerGly...LeuGlnPheTh 618

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618 rThrLysArgThrAsnLysTyrAlaIleThrAsnLysPheGluGlyThrL 635

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1532 GGACG.........................................GTG 1539
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1630 TTCCACCGCATT.........CAAAATACCGATGAAGGGGCGATGATTGT 1670
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2575 ..........TCCCTAGCCGATAAGGCAGTATTCCATTTTGAAAACAGC 2613
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seq_name: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:US-08-530-198-2

seq_documentation_block:
; Sequence 2, Application US/08530198
; Patent No. 5869065
;  GENERAL INFORMATION:
;    APPLICANT:  BARENKAMP, STEPHEN J
;    APPLICANT:  ST. GEME III, JOSEPH W
;    TITLE OF INVENTION:  HIGH MOLECULAR WEIGHT SURFACE PROTEINS
;    TITLE OF INVENTION:  OF NON-TYPEABLE HAEMOPHILUS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/530,198
;      FILING DATE:  13-DEC-1995
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  BERKSTRESSER, JERRY W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  JWB-1186
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1536 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-530-198-2


alignment_scores:
            Quality:  265.00              Length:   1297
              Ratio:  0.438                 Gaps:     73
 Percent Similarity:  46.646   Percent Identity: 21.126

alignment_block:
 US-09-303-518D-653 x US-08-530-198-2   ..

 Align seg 1/1  to: US-08-530-198-2  from: 1  to: 1536

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     386 sGlyGlyArgAlaIleValTrpGlyAspIleAlaLeuIleAspGlyAsnI 403
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 419 uThrSerGlyHisAspLeuPheIleLysAsp..... 429

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seq_documentation_block:
; Sequence 2, Application US/08469880
; Patent No. 5876733
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J.
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5876733-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/469,880
;      FILING DATE:  06-JUN-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;
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;       FILING DATE:  16-SEP-1994
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Berkstresser, Jerry W
;       REGISTRATION NUMBER:  22,651
;       REFERENCE/DOCKET NUMBER:  1038-516 MIS:vg
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  (703) 415-0810
;       TELEFAX:  (703) 415-0813
;   INFORMATION FOR SEQ ID NO:  2:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  1536 amino acids
;       TYPE:  amino acid
;       STRANDEDNESS:  single
;       TOPOLOGY:  linear
;     MOLECULE TYPE:  DNA (genomic)
US-08-469-880-2


alignment_scores:
            Quality:  265.00              Length:   1297
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alignment_block:
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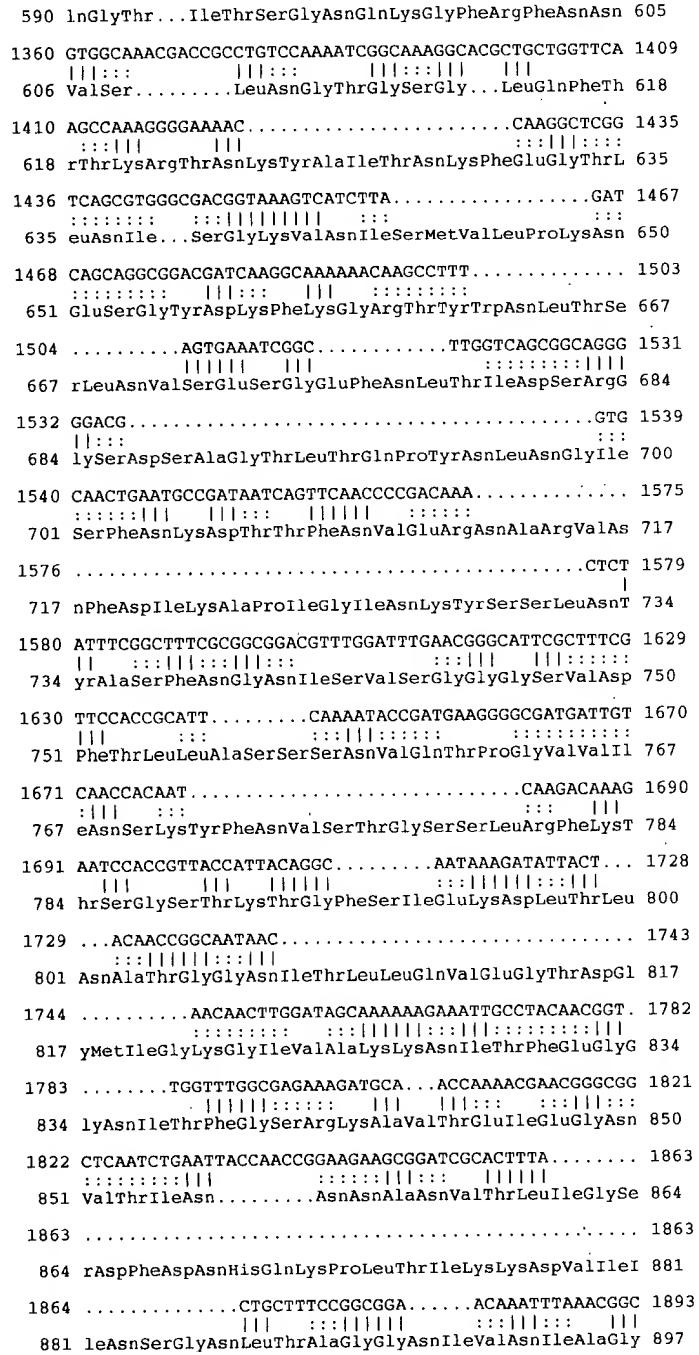
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; Patent No. 5928651
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 5928651-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/728,470
;      FILING DATE:
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-633
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1536 amino acids
;      TYPE:  amino acid
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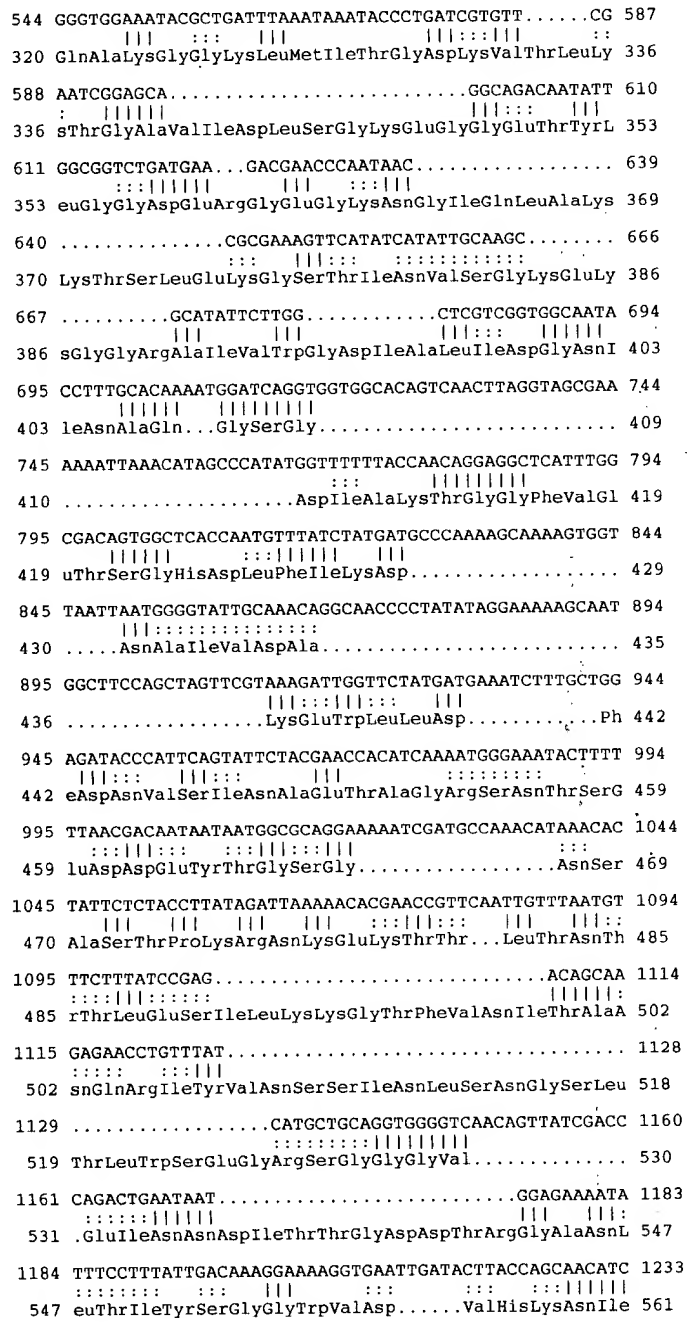
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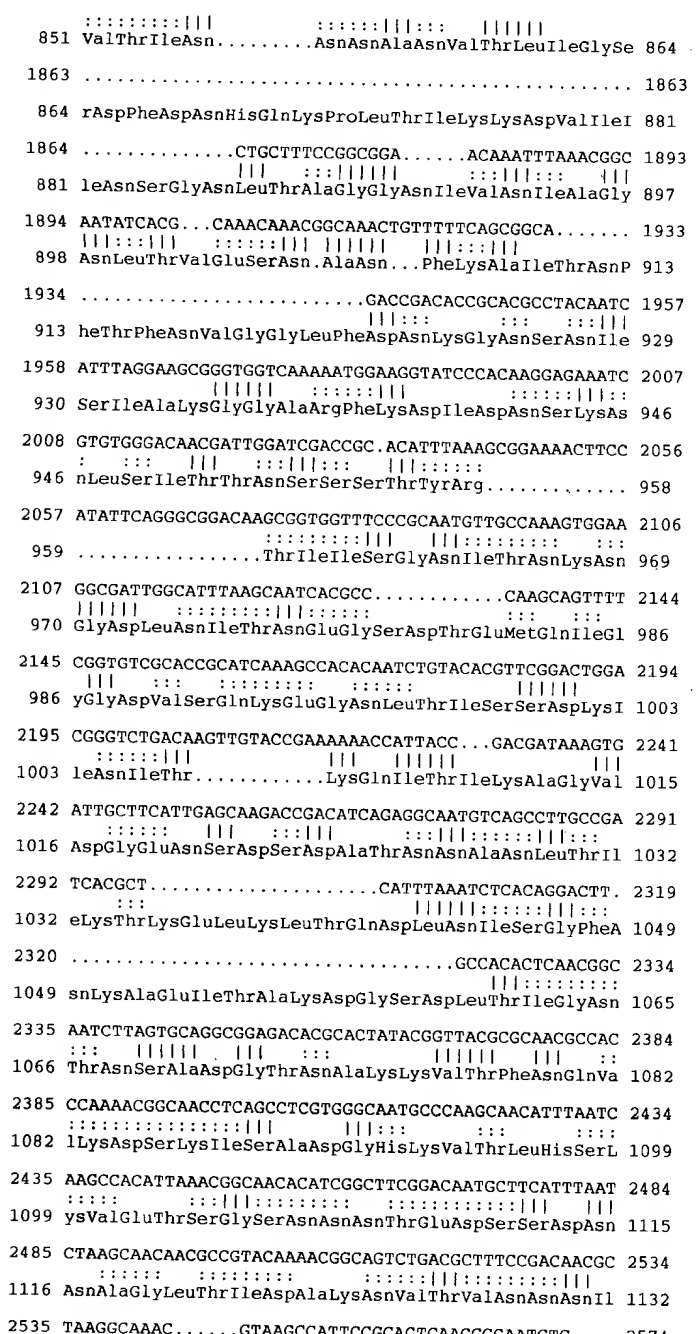

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; Patent No. 5977336
; GENERAL INFORMATION:
; APPLICANT: Barenkamp, Stephen J
; TITLE OF INVENTION: High Molecular Weight Surface Proteins
; TITLE OF INVENTION: of No. 5977336-Typeable Haemophilus
; NUMBER OF SEQUENCES: 11
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Shoemaker and Mattare, Ltd.
; STREET: 2001 Jefferson Davis Hwy., 1203 Crystal Plaza
; STREET: Bldg. 1
; CITY: Arlington

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;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/617,697
;      FILING DATE:  01-APR-1996
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  05-OCT-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-557
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1536 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
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US-08-617-697-2


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            Quality:  265.00              Length:   1297
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     588 AATCGGAGCA.........................GGCAGACAATATT 610
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     611 GGCGGTCTGATGAA...GACGAACCCAATAAC.................. 639
               :::||||||      |||   :::|||
     353 euGlyGlyAspGluArgGlyGluGlyLysAsnGlyIleGlnLeuAlaLys 369

     640 ..............CGCGAAAGTTCATATCATATTGCAAGC........ 666
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     370 LysThrSerLeuGluLysGlySerThrIleAsnValSerGlyLysGluLy 386

     667 ..........GCATATTCTTGG............CTCGTCGGTGGCAATA 694
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     386 sGlyGlyArgAlaIleValTrpGlyAspIleAlaLeuIleAspGlyAsnI 403

     695 CCTTTGCACAAAATGGATCAGGTGGTGGCACAGTCAACTTAGGTAGCGAA 744
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     403 leAsnAlaGln...GlySerGly........................... 409

     745 AAAATTAAACATAGCCCATATGGTTTTTTACCAACAGGAGGCTCATTTGG 794
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     410 ....................AspIleAlaLysThrGlyGlyPheValGl 419

     795 CGACAGTGGCTCACCAATGTTTATCTATGATGCCCAAAAGCAAAAGTGGT 844
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     419 uThrSerGlyHisAspLeuPheIleLysAsp................... 429

     845 TAATTAATGGGGTATTGCAAACAGGCAACCCCTATATAGGAAAAAGCAAT 894
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     430 .....AsnAlaIleValAspAla........................... 435

     895 GGCTTCCAGCTAGTTCGTAAAGATTGGTTCTATGATGAAATCTTTGCTGG 944
                           |||:::|||:::   |||
     436 ..................LysGluTrpLeuLeuAsp............Ph 442

     945 AGATACCCATTCAGTATTCTACGAACCACATCAAAATGGGAAATACTTTT 994
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     995 TTAACGACAATAATAATGGCGCAGGAAAAATCGATGCCAAACATAAACAC 1044
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     459 luAspAspGluTyrThrGlySerGly..................AsnSer 469

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     470 AlaSerThrProLysArgAsnLysGluLysThrThr...LeuThrAsnTh 485

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     485 rThrLeuGluSerIleLeuLysLysGlyThrPheValAsnIleThrAlaA 502

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 562  SerLeuGlyAla..............GlnGlyAsnIleAsnIleThrAl 573

1284  TAAA.......................AACAACGAAACGTGGCAAGGCG 1309
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 573  aLysGlnAspIleAlaPheGluLysGlySerAsnGlnValIleThrGlyG 590

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1360  GTGGCAAACGACCGCCTGTCCAAAATCGGCAAAGGCACGCTGCTGGTTCA 1409
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1410  AGCCAAAGGGGAAAAC.......................CAAGGCTCGG 1435
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1532  GGACG.......................................GTG 1539
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1580  ATTTCGGCTTTCGCGGCGGACGTTTGGATTTGAACGGGCATTCGCTTTCG 1629
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1894  AATATCACG...CAAACAAACGGCAAACTGTTTTTCAGCGGCA....... 1933
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1958  ATTTAGGAAGCGGGTGGTCAAAAATGGAAGGTATCCCACAAGGAGAAATC 2007
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 930  SerIleAlaLysGlyGlyAlaArgPheLysAspIleAspAsnSerLysAs 946

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2107  GGCGATTGGCATTTAAGCAATCACGCC............CAAGCAGTTTT 2144
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2145  CGGTGTCGCACCGCATCAAAGCCACACAATCTGTACACGTTCGGACTGGA 2194
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 986  yGlyAspValSerGlnLysGluGlyAsnLeuThrIleSerSerAspLysI 1003

2195  CGGGTCTGACAAGTTGTACCGAAAAAACCATTACC...GACGATAAAGTG 2241
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2320  ................................GCCACACTCAACGGC 2334
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 2949 GCTGGCGGAAAGTTCCGAAGGCACTTACACCTTGGCTGTC.......... 2988
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 1259 s...AlaThrThrGlyGluAlaAsnValThrSerAlaThrGlyThrIleG 1275

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seq_name: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:US-08-719-641-2

seq_documentation_block:
; Sequence 2, Application US/08719641
; Patent No. 6218141
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen J
;    TITLE OF INVENTION:  High Molecular Weight Surface Proteins
;    TITLE OF INVENTION:  of No. 6218141-Typeable Haemophilus
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Shoemaker and Mattare, Ltd.
;      STREET:  2001 Jefferson Davis Hwy., 1203 Crystal Plaza
;      STREET:  Bldg. 1
;      CITY:  Arlington
;      STATE:  Virginia
;      COUNTRY:  U.S.A.
;      ZIP:  22202-0286
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/719,641
;      FILING DATE:
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/302,832
;      FILING DATE:  16-SEP-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US PCT/US93/02166
;      FILING DATE:  16-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  GB 9205704.1
;      FILING DATE:  16-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Berkstresser, Jerry W
;      REGISTRATION NUMBER:  22,651
;      REFERENCE/DOCKET NUMBER:  1038-625
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (703) 415-0810
;      TELEFAX:  (703) 415-0813
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1536 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:
US-08-719-641-2


alignment_scores:
            Quality:  265.00              Length:   1297
              Ratio:  0.438                 Gaps:     73
 Percent Similarity:  46.646   Percent Identity: 21.126

alignment_block:
 US-09-303-518D-653 x US-08-719-641-2   ..

 Align seq 1/1  to: US-08-719-641-2  from: 1  to: 1536

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seq_name: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:US-09-268-347-36

seq_documentation_block:
; Sequence 36, Application US/09268347
; Patent No. 6335182
; GENERAL INFORMATION:
;  APPLICANT: Loosmore, Sheena M.
;  TITLE OF INVENTION: RECOMBINANT HAEMOPHILUS INFLUENZAE ADHESIN PROTEINS
;  FILE REFERENCE: 1038-860
;  CURRENT APPLICATION NUMBER: US/09/268,347
;  CURRENT FILING DATE: 1999-03-16
;  NUMBER OF SEQ ID NOS: 54
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 36
;   LENGTH: 2411
;   TYPE: PRT
;   ORGANISM: Haemophilus influenzae
US-09-268-347-36


alignment_scores:
            Quality:  257.50              Length:   1701
              Ratio:  0.341                Gaps:      75
 Percent Similarity:  44.444   Percent Identity: 18.871

alignment_block:
 US-09-303-518D-653 x US-09-268-347-36   ..

 Align seg 1/1  to: US-09-268-347-36  from: 1  to: 2411

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     275 ysAspGlyLysLeuPheThrGlyLysGluAsnAsnAspThrAsnLysVal 291

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     881 TA...GGAAAAAGCAATGGCTTCCAGCTAGTTCGTAAAGATTGGTTCTAT 927
         ||   :::   ::::::|||::::::                  |||
     537 leThrAsnValAlaSerGlyLeuArgAla.................Tyr 547

     928 GATGAAATCTTTGCTGGAGATACCCATTCAGTATTCTACGAACCACATCA 977
         |||:::
     548 AspAspAla.......................................... 550

     978 AAATGGGAAATACTTTTTTAACGACAATAATAATGGCGCAGGAAAAATCG 1027
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     551 .............AsnPheAspValLeuAsnAsnSerAlaThrAspLeu. 562

    1028 ATGCCAAACATAAACACTATTCTCTACCTTATAGATTAAAAACACGAACC 1077
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     563 ........AsnArgHisValGluAspAlaTyrLys.............. 571

    1078 GTTCAATTGTTTAATGTTTCTTTATCCGAGACAGCAAGAGAACCT..... 1122
               |||:::|||::::::   :::::::::   :::::::|||
     572 ...GlyLeuLeuAsnLeuAsnGluLysAsnAlaAsnLysGlnProLeuVa 587

    1123 ..............................................G 1123
                                                      |
     587 lThrAspSerThrAlaAlaThrValGlyAspLeuArgLysLeuGlyTrpV 604

    1124 TTTATCATGCTGCAGGTGGGGTCAACAGTTATCGACCCAGACTGAATAAT 1173
         ||      :::   :::|||:::::::::         ::::::::::::
     604 alValSerThrLysAsnGlyThrLysGluGluSerAsnGlnValLysGln 620

    1174 GGAGAAAATATTTCCTTTATTGACAAAGGAAAAGGTGAATTGATACTTAC 1223
         ::::::::::::   |||          |||   |||          :::||
     621 AlaAspGluValLeuPhe......ThrGlyAlaGlyAlaAlaThrValTh 635

    1224 CAGCAACATCAACCAAGGCGCGGGCGGTTTGTATTTTGAGGGTAATTTTA 1273
         ||||:::   :::                          :::|||:::   |
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1274 CGGTCTCGCCTAAAAACAACGAAACGTGGCAAGGCGCGGGCGTTCATATC 1323
644 hrIleThrValSerValAlaGluThrLysAlaAspSerGlyLeuGlu... 659
1324 AGTGATGGCAGTACCGTTACTTGGAAAGTAAACGGCGTGGCAAACGACCG 1373
660 LysAspGlyAspThrIleLysLeuLysValAspAsnGlnAsnThrAspAs 676
1374 CCTGTCCAAAATCGGC...AAAGGCACGCTGCTGGTTCAAGCCAAAGGGG 1420
676 nValLeuThrValGlyAsnAsnGlyThrAlaValThrLysGlyGlyPheG 693
1421 AA......AACCAAGGCTCGGTCAGCGTGGGCGACGGTAAAGTC...ATC 1461
693 luThrValLysThrGlyAlaThrAspAlaAspArgGlyLysValThrVal 709
1462 TTAGATCAGCAGGCGGACGATCAAGGCAAAAAACAAGCC...TTTAGTGA 1508
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1509 AATCGGCTTGGTCAGCGGCAGGGGGACGGTGCAACTGAATGCCGATAAT. 1557
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793 luValLysThrAlaLysValSer.....AspThrLeu 803
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seq_name: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:US-09-268-347-47

seq_documentation_block:
; Sequence 47, Application US/09268347
; Patent No. 6335182
; GENERAL INFORMATION:
;  APPLICANT: Loosmore, Sheena M.
;  TITLE OF INVENTION: RECOMBINANT HAEMOPHILUS INFLUENZAE ADHESIN PROTEINS
;  FILE REFERENCE: 1038-860
;  CURRENT APPLICATION NUMBER: US/09/268,347
;  CURRENT FILING DATE: 1999-03-16
;  NUMBER OF SEQ ID NOS: 54
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 47
;   LENGTH: 2354
;   TYPE: PRT
;   ORGANISM: Haemophilus influenzae
US-09-268-347-47


alignment_scores:
            Quality:  254.50              Length:   1664
              Ratio:  0.346                 Gaps:     75
 Percent Similarity:  44.231   Percent Identity: 19.591

alignment_block:
 US-09-303-518D-653 x US-09-268-347-47   ..

 Align seg 1/1  to: US-09-268-347-47  from: 1  to: 2354

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      48 TAAAACCGGCCGCATCCGCTTCTCGCCCGCTTACTTAGCCATATGCCTGT 97
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     262 yLysThrThrGluValLysPheThrProLysThrSerValIleLysGluL 279

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     296 ThrSerAsnThrAlaThrAspAsnThrAspGluGlyAsnGlyLeuValTh 312

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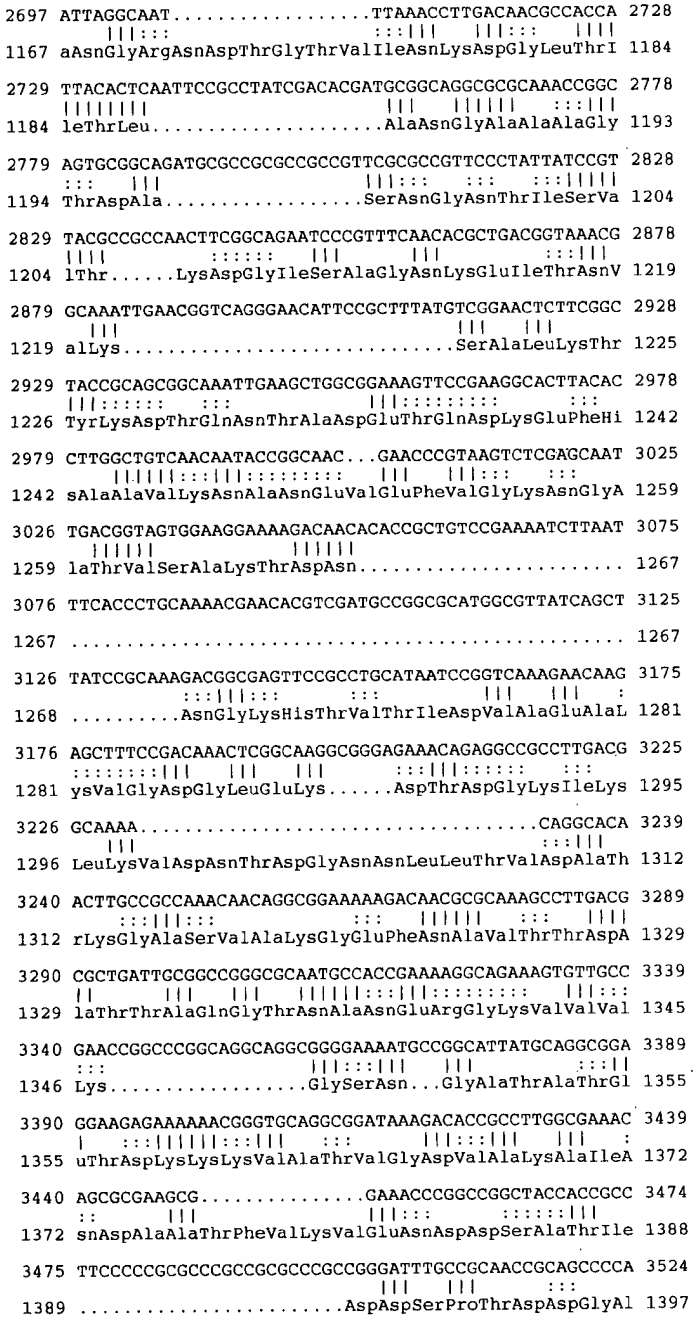

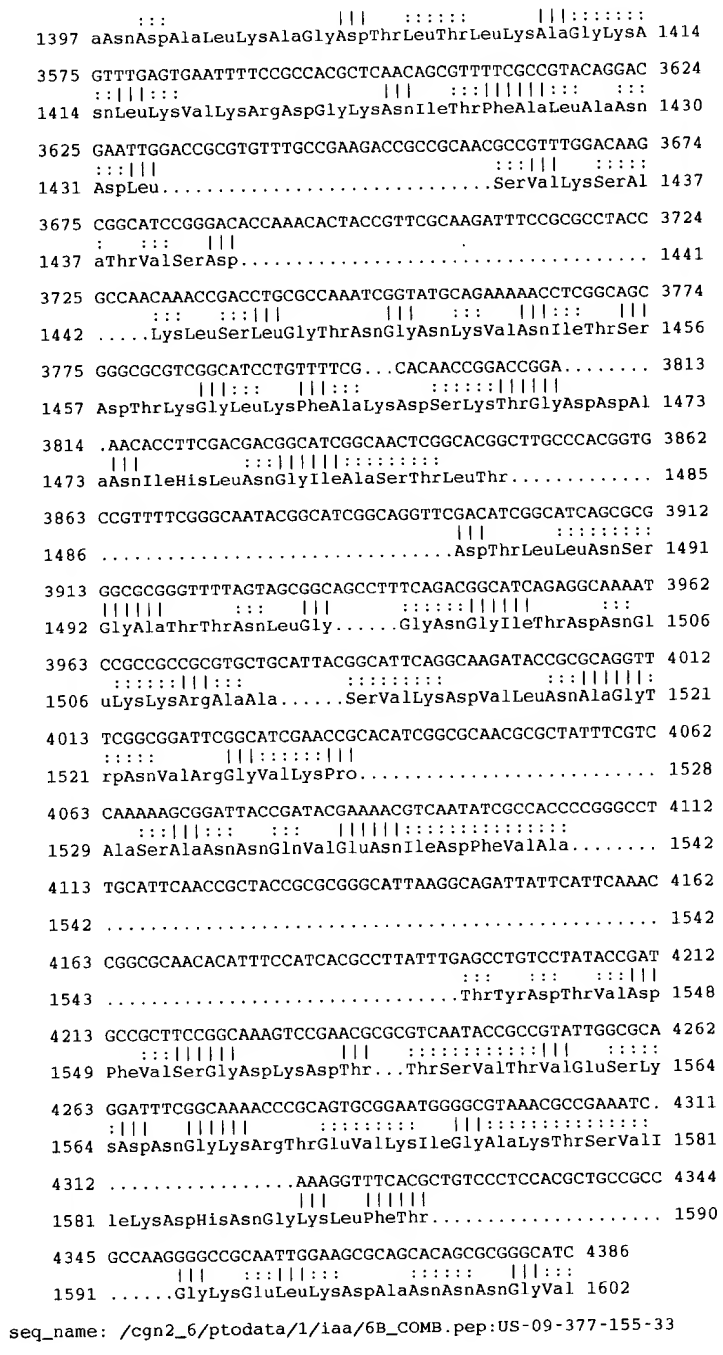

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; Patent No. 6197312
; GENERAL INFORMATION:
;  APPLICANT:  PEAK, Ian Richard Anselm
;  APPLICANT:  JENNINGS, Michael Paul
;  APPLICANT:  MOXON, E. Richard
;  TITLE OF INVENTION:  NOVEL SURFACE ANTIGEN
;  FILE REFERENCE:  065064/0128
;  CURRENT APPLICATION NUMBER: US/09/377,155
;  CURRENT FILING DATE:  1999-08-19
;  PRIOR APPLICATION NUMBER:  PCT/AU98/01031
;  PRIOR FILING DATE:  1998-12-14
;  PRIOR APPLICATION NUMBER:  GB 9726398.2
;  PRIOR FILING DATE:  1997-12-12
;  NUMBER OF SEQ ID NOS:  33
;  SOFTWARE:  PatentIn Ver. 2.0
; SEQ ID NO 33
;   LENGTH: 2353
;   TYPE: PRT
;   ORGANISM: Haemophilus influenzae
US-09-377-155-33

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              Ratio:  0.344             Gaps:     75
 Percent Similarity:  44.231  Percent Identity: 19.591

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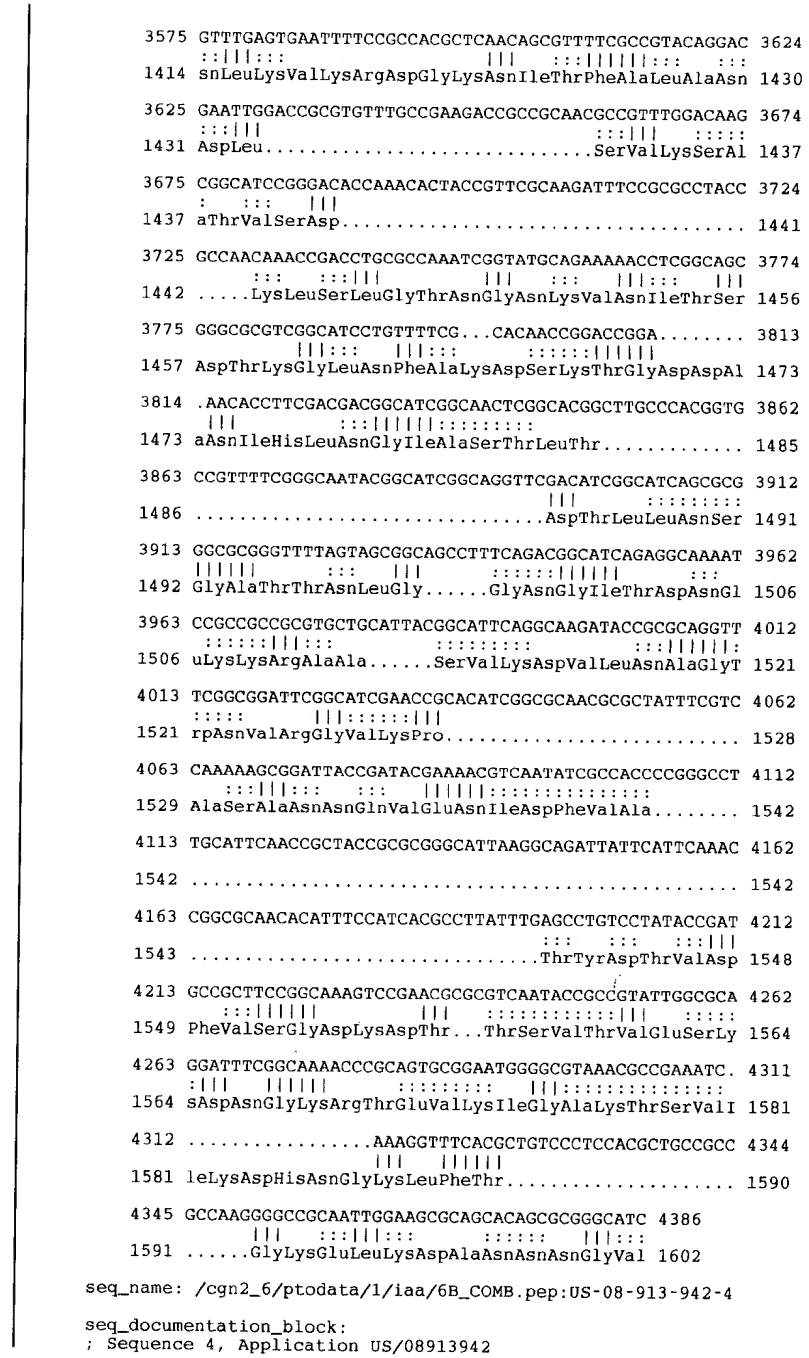

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; Sequence 4, Application US/08913942

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; Patent No. 6200578
;  GENERAL INFORMATION:
;    APPLICANT:  St. Geme, Joseph
;    APPLICANT:  Barenkamp, Stephen J.
;    TITLE OF INVENTION:  HAEMOPHILUS ADHESION PROTEINS
;    NUMBER OF SEQUENCES:  19
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr Hohbach Test Albritton & Herbert LLP
;      STREET:  Four Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/913,942
;      FILING DATE:  29-DEC-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/409,995
;      FILING DATE:  24-MAR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US96/4031
;      FILING DATE:  22-MAR-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Vance, Dolly A.
;      REGISTRATION NUMBER:  39,054
;      REFERENCE/DOCKET NUMBER:  A-61053-1/RFT/RMS/DAV
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  2353 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
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US-08-913-942-4


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            Quality:  253.50            Length:   1664
              Ratio:  0.344               Gaps:     75
 Percent Similarity:  44.231   Percent Identity: 19.591

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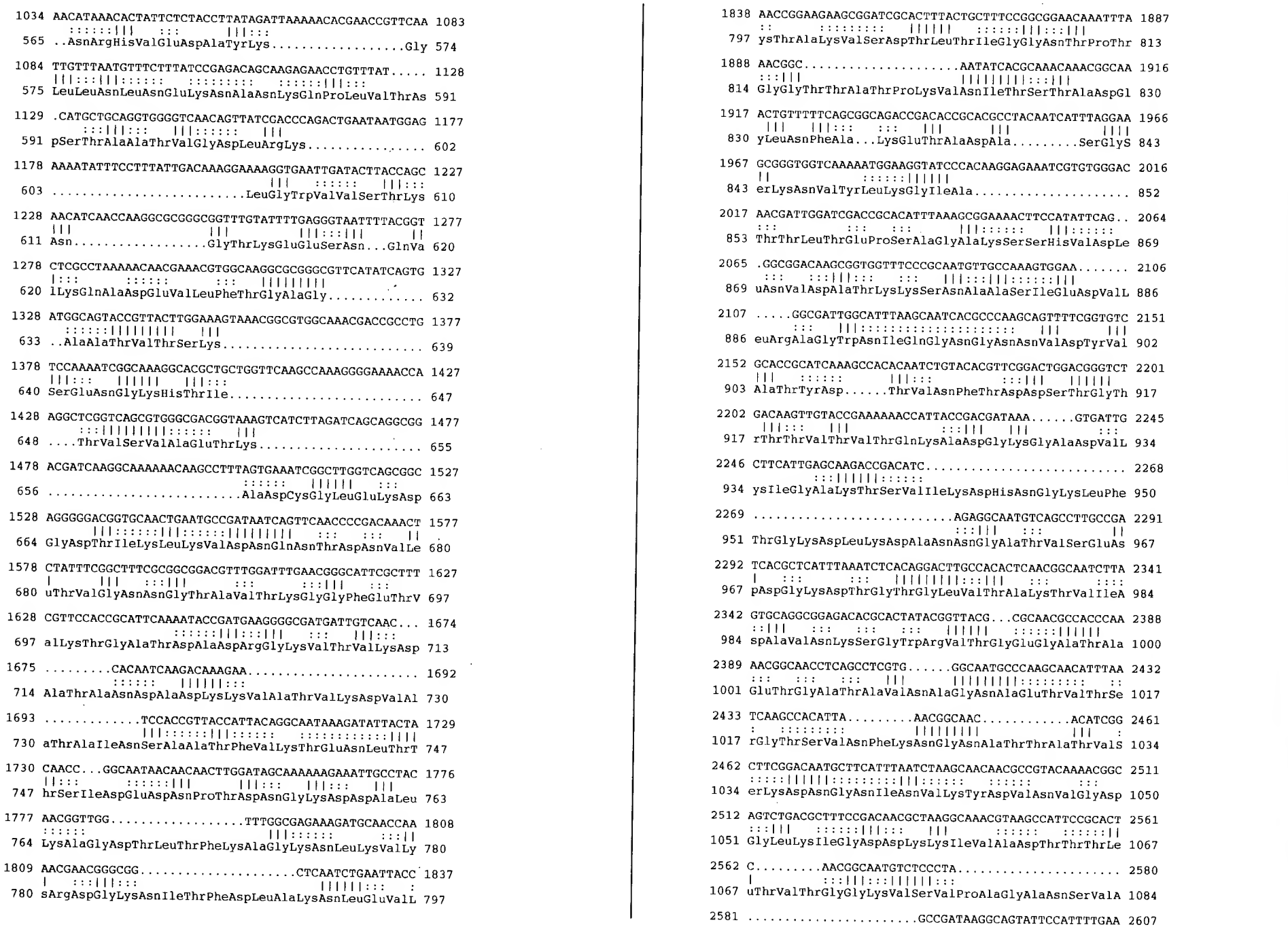

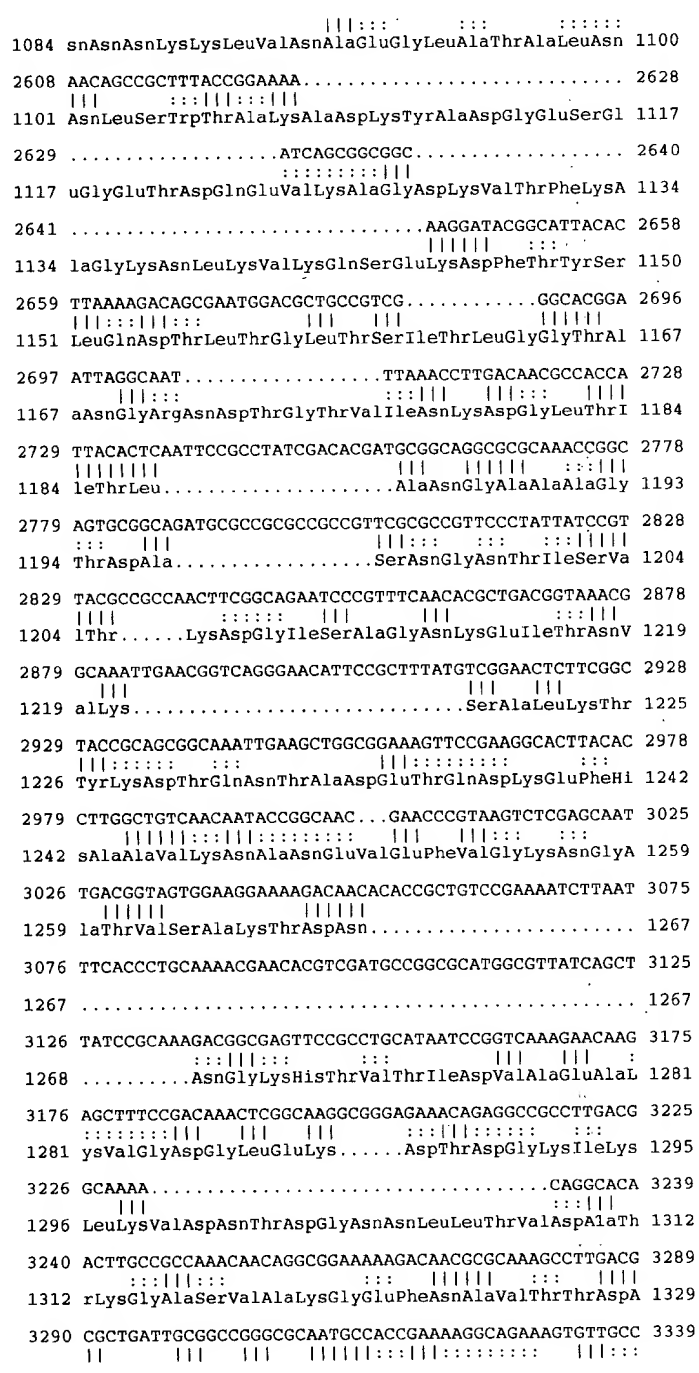
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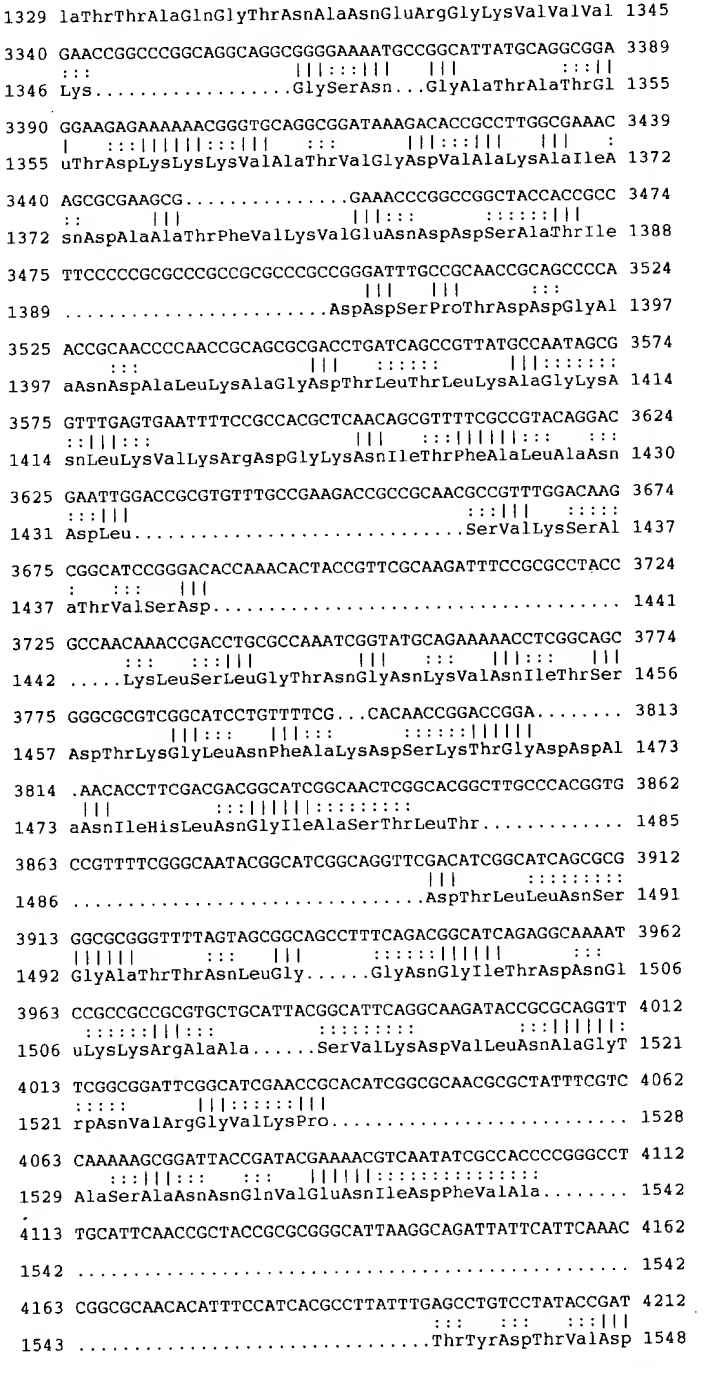
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; Patent No. 6333173
; GENERAL INFORMATION:
;  APPLICANT: PEAK, Ian Richard Anselm
;  APPLICANT:  JENNINGS, Michael Paul
;  APPLICANT:  MOXON, E. Richard
;  TITLE OF INVENTION: NOVEL SURFACE ANTIGEN
;  FILE REFERENCE: 065064/0128
;  CURRENT APPLICATION NUMBER: US/09/669,974
;  CURRENT FILING DATE:  2000-09-26
;  PRIOR APPLICATION NUMBER: US 09/377,155
;  PRIOR FILING DATE: 1999-08-19
;  PRIOR APPLICATION NUMBER: PCT/AU98/01031
;  PRIOR FILING DATE: 1998-12-14
;  PRIOR APPLICATION NUMBER: GB 9726398.2
;  PRIOR FILING DATE: 1997-12-12
;  NUMBER OF SEQ ID NOS: 33
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 33
;   LENGTH: 2353
;   TYPE: PRT
;   ORGANISM: Haemophilus influenzae
US-09-669-974-33


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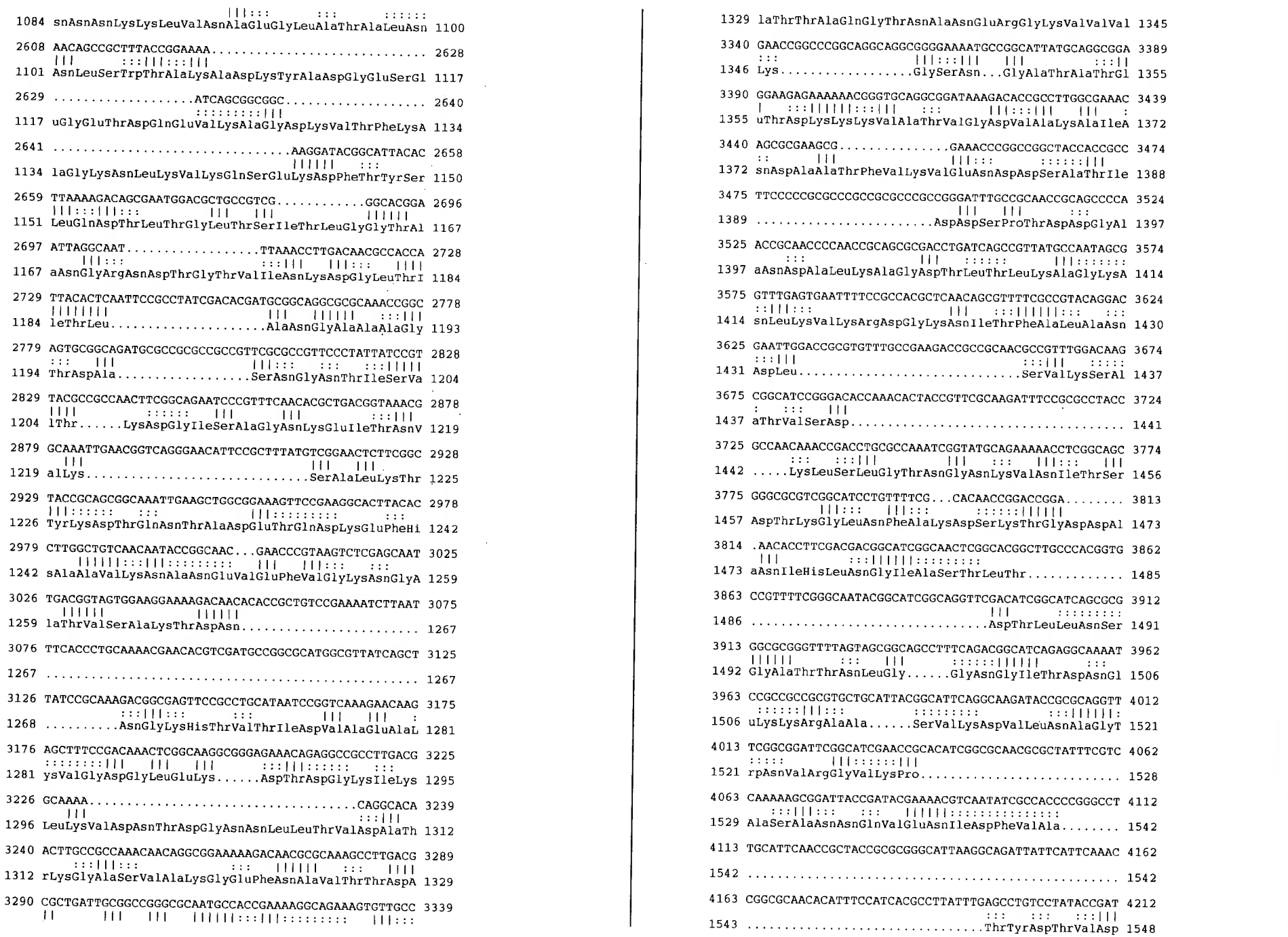

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; Patent No. 5646259
;  GENERAL INFORMATION:
;    APPLICANT:  Barenkamp, Stephen I.
;    APPLICANT:  St. Geme III, Joseph W.
;    TITLE OF INVENTION:  Haemophilus Adhesion Proteins
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  Four Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/409,995
;      FILING DATE:  24-MAR-1995
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Silva, Robin M.
;      REGISTRATION NUMBER:  38,304
;      REFERENCE/DOCKET NUMBER:  A-61053/RFT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
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;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1912 amino acids
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;      STRANDEDNESS:  double
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US-08-409-995-4


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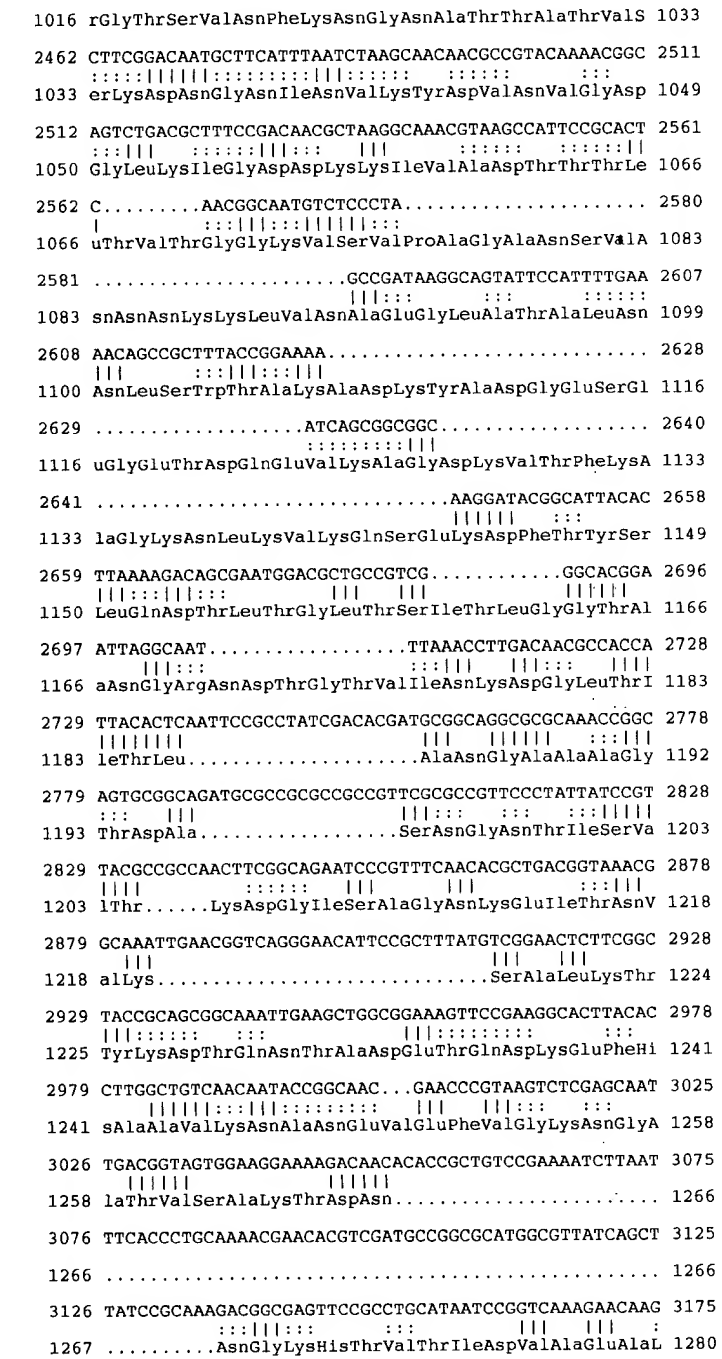
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; Sequence 4, Application US/08685467
; Patent No. 6060059
;  GENERAL INFORMATION:
;    APPLICANT:  St. Geme III, Joseph W.
;    APPLICANT:  Barenkamp, Stephen J.
;    TITLE OF INVENTION:  HAEMOPHILUS ADHESION PROTEINS
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Flehr, Hohbach, Test, Albritton & Herbert
;      STREET:  Four Embarcadero Center, Suite 3400
;      CITY:  San Francisco
;      STATE:  California
;      COUNTRY:  United States
;      ZIP:  94111-4187
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/685,467
;      FILING DATE:  22-JUL-1996
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/409,995
;      FILING DATE:  24-MAR-1995
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Silva, Robin M.
;      REGISTRATION NUMBER:  38,304
;      REFERENCE/DOCKET NUMBER:  A-61053-2/RFT/RMS
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 781-1989
;      TELEFAX:  (415) 398-3249
;      TELEX:  910 277299
;  INFORMATION FOR SEQ ID NO:  4:
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US-08-685-467-4


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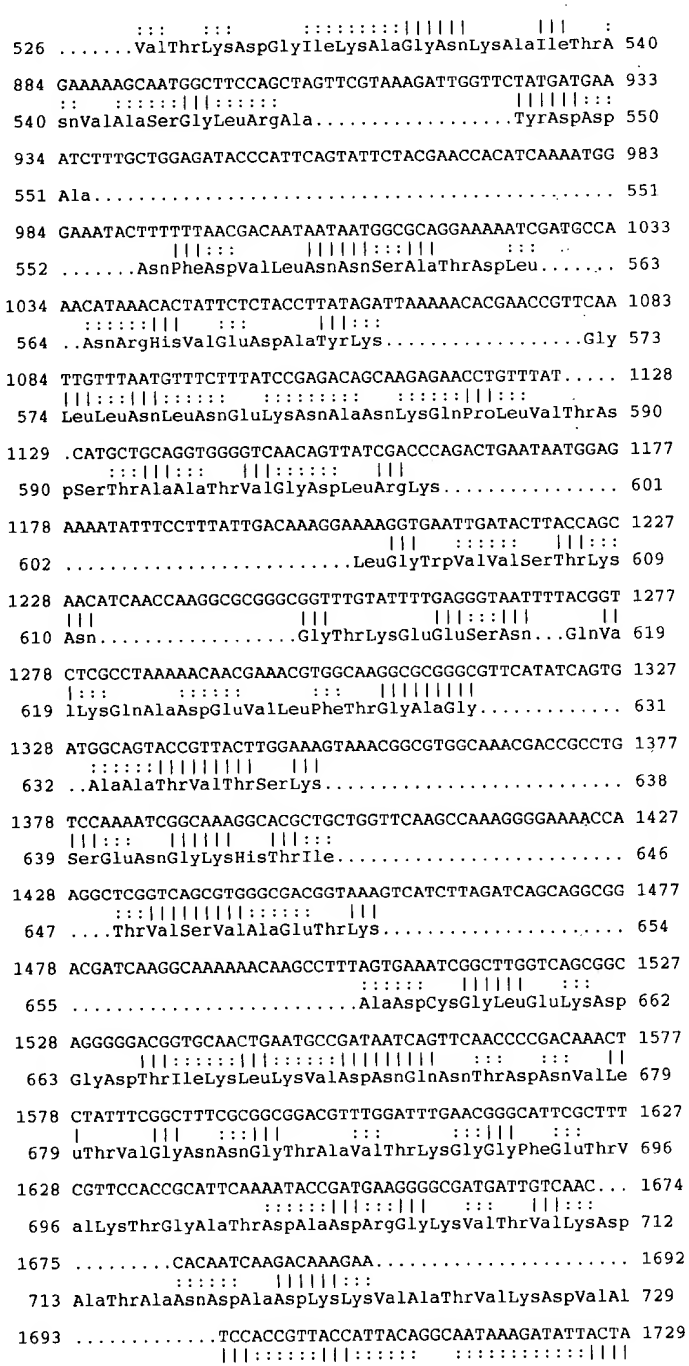
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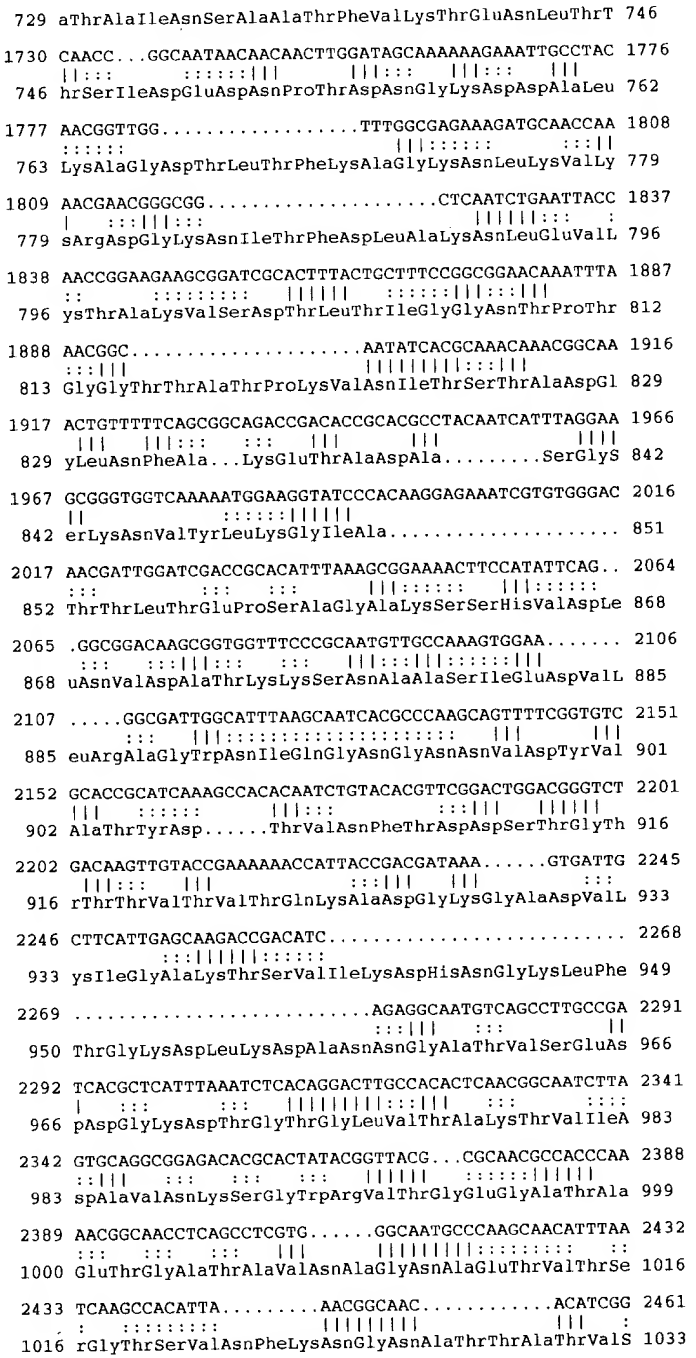
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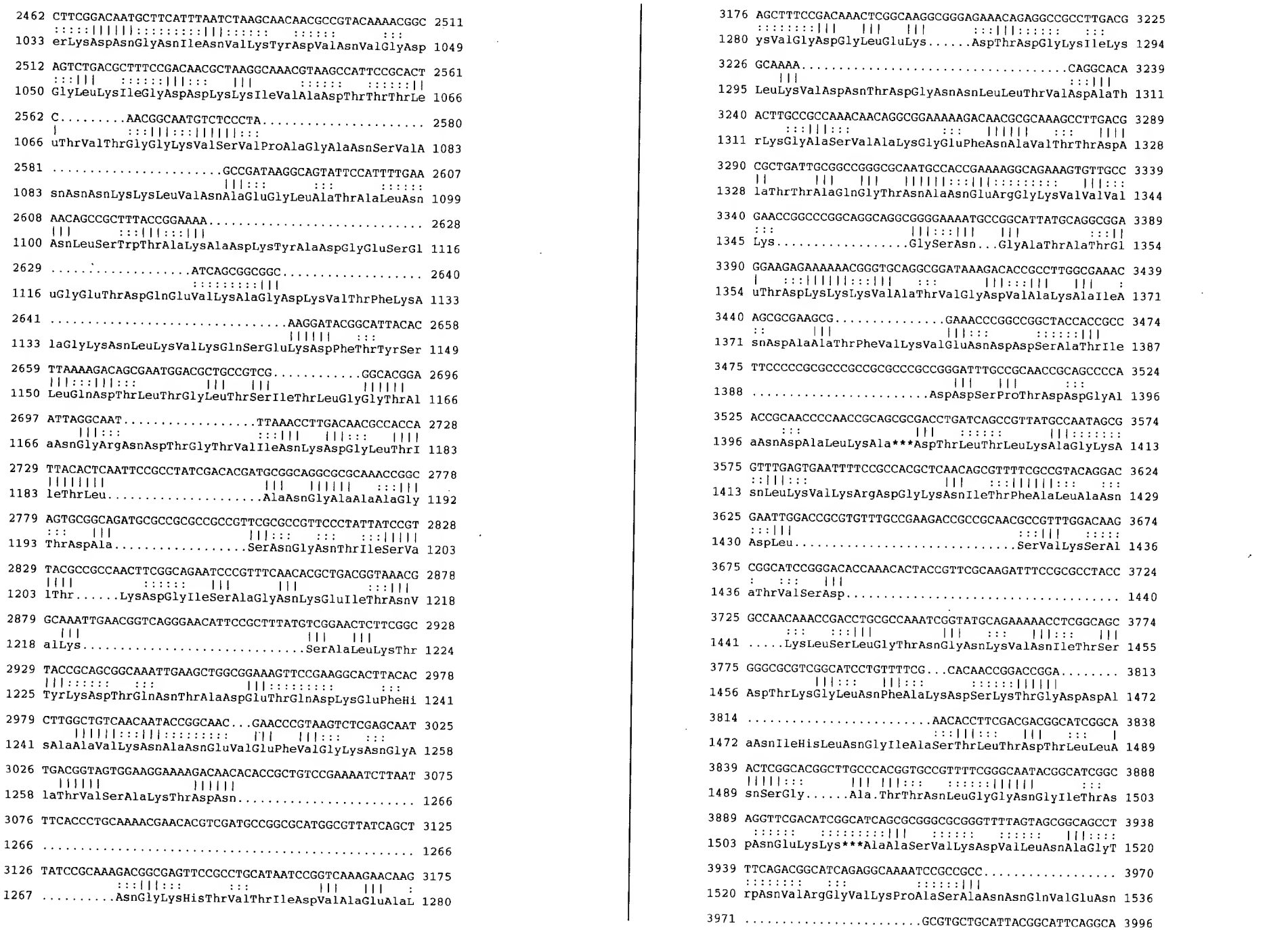

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seq_documentation_block:
; Sequence 78, Application US/09413814
; Patent No. 6225064
; GENERAL INFORMATION:
;  APPLICANT: Gesellschaft fuer Biotechnologische Forschung mbH
;  APPLICANT: Bristol-Myers Squibb, Co.
;  APPLICANT: Beyer, Stefan
;  APPLICANT: Bloecker, Helmut
;  APPLICANT: Brandt, Petra
;  APPLICANT: Cino, Paul M
;  APPLICANT: Dougherty, Brian A
;  APPLICANT: Goldberg, Steven L
;  APPLICANT: Hofle, Gerhard
;  APPLICANT: Mueller, Joachim
;  APPLICANT: Reichenbach, Hans
;  TITLE OF INVENTION: DNA sequences for enzymatic synthesis of polyketide or
;  TITLE OF INVENTION: heteropolyketide compounds
;  FILE REFERENCE: PCT/US 99/23535
;  CURRENT APPLICATION NUMBER: US/09/413,814
;  CURRENT FILING DATE: 1999-10-07
;  EARLIER APPLICATION NUMBER: DE 198 46 493.2
;  EARLIER FILING DATE: 1998-10-09
;  NUMBER OF SEQ ID NOS: 107
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 78
;   LENGTH: 882
;   TYPE: PRT
;   ORGANISM: Sorangium cellulosum
US-09-413-814-78


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; Patent No. 5783441
;  GENERAL INFORMATION:
;    APPLICANT:  Carl, Mitchell
;    APPLICANT:  Dobson, Michael E.
;    APPLICANT:  Ching, Wei Mei
;    APPLICANT:  Dasch, Gregory A
;    TITLE OF INVENTION:  Gene and Protein Applicable to the
;    TITLE OF INVENTION:  Preparation of Vaccines for Rickettsia prowazekii and
;    TITLE OF INVENTION:  Rickettsia typhi and the Detection of Both
;    NUMBER OF SEQUENCES:  2
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Counsel, Naval Medical R & D Command
;      STREET:  Bldg. 1, T-12, 8901 Wisconsin Ave.
;      CITY:  Bethesda
;      STATE:  MD
;      COUNTRY:  USA
;      ZIP:  20889-5606
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/169,927
;      FILING DATE:
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 07/742,128
;      FILING DATE:  08/09/91
;    ATTORNEY/AGENT INFORMATION:
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;      NAME:  Spevack, A. David
;      REGISTRATION NUMBER:  24,743
;      REFERENCE/DOCKET NUMBER:  75,976
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (301) 295-6759
;      TELEFAX:  (301) 295-1022
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1612 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-169-927-2


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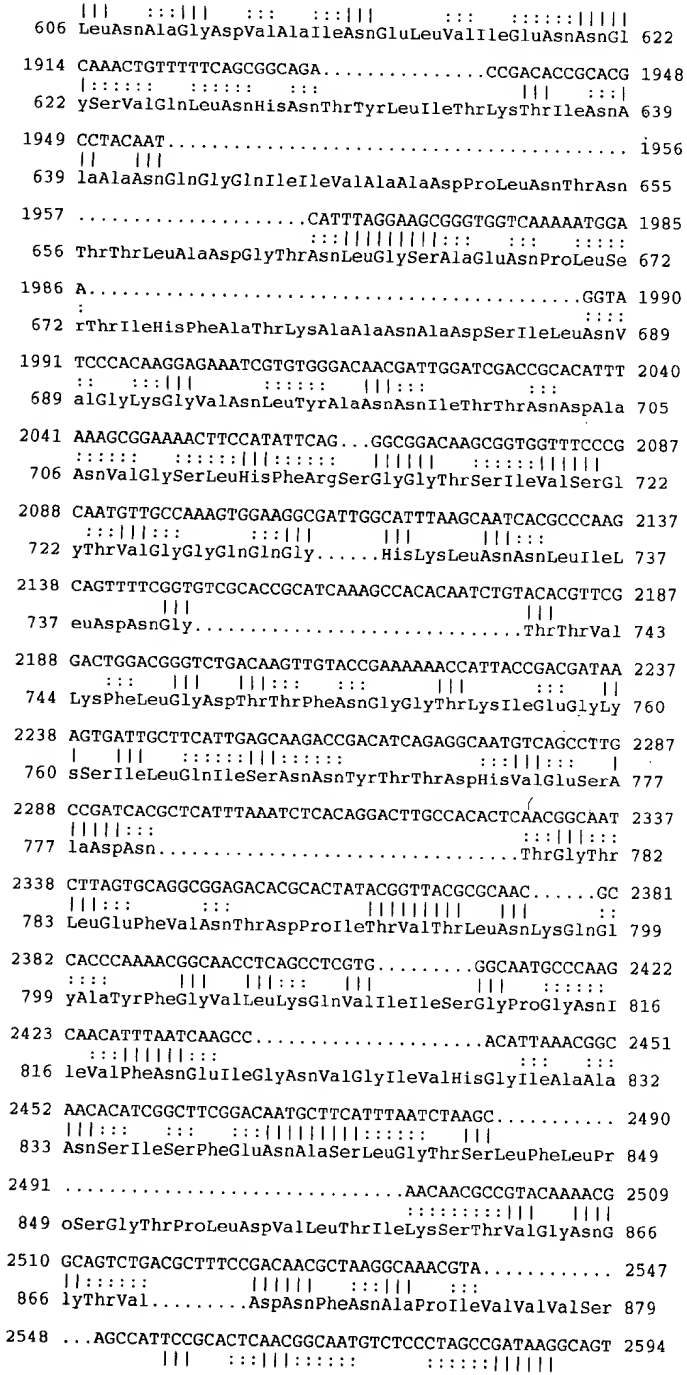
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; Sequence 49, Application US/09268347
; Patent No. 6335182
; GENERAL INFORMATION:
; APPLICANT: Loosmore, Sheena M.
; TITLE OF INVENTION: RECOMBINANT HAEMOPHILUS INFLUENZAE ADHESIN PROTEINS
; FILE REFERENCE: 1038-860
; CURRENT APPLICATION NUMBER: US/09/268,347
; CURRENT FILING DATE: 1999-03-16
; NUMBER OF SEQ ID NOS: 54
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 49
; LENGTH: 2314
; TYPE: PRT
; ORGANISM: Haemophilus influenzae
US-09-268-347-49

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seq_documentation_block:
; Sequence 10, Application US/08968685A
; Patent No. 6214981
; GENERAL INFORMATION:
; APPLICANT: TUCKER, KENNETH
; APPLICANT: PLOSILA, LAURA
; TITLE OF INVENTION: MORAXELLA CATARRHALIS OUTER MEMBRANE
; TITLE OF INVENTION: PROTEIN-106 POLYPEPTIDE, GENE SEQUENCE AND USES THEREOF
; NUMBER OF SEQUENCES: 21
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: PENNIE & EDMONDS LLP
; STREET: 1155 Avenue of the Americas
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036-2711
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30

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;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/968,685A
;      FILING DATE:  No. 6214981ember 12, 1997
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Baldwin, Geraldine F.
;      REGISTRATION NUMBER:  31,232
;      REFERENCE/DOCKET NUMBER:  7969-060
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212) 790-9090
;      TELEFAX:  (212) 869-8864
;      TELEX:  66141 PENNIE
;  INFORMATION FOR SEQ ID NO:  10:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  2123 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  unknown
;    MOLECULE TYPE:  peptide
US-08-968-685A-10


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 Percent Similarity:  44.983   Percent Identity: 19.327

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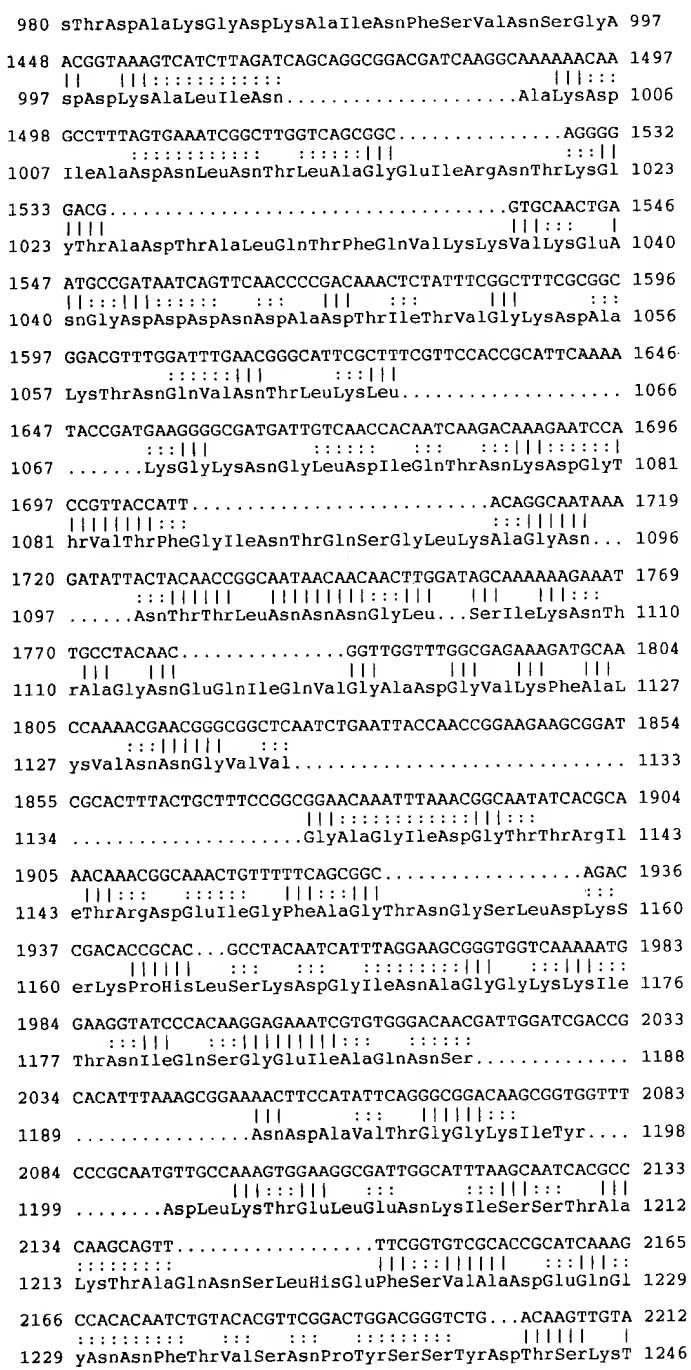
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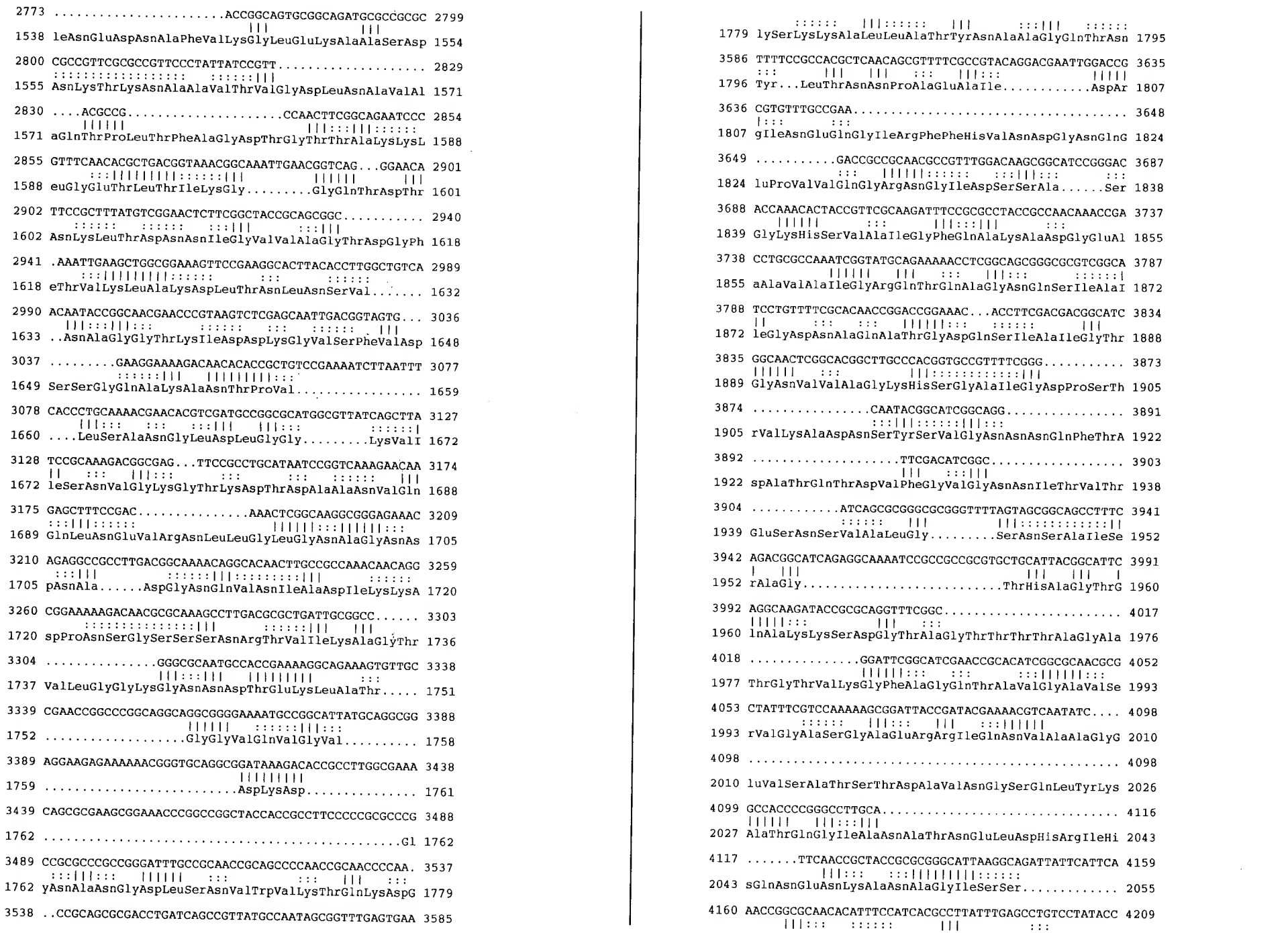

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seq_documentation_block:
; Sequence 48, Application US/09268347
; Patent No. 6335182
; GENERAL INFORMATION:
;  APPLICANT: Loosmore, Sheena M.
;  TITLE OF INVENTION: RECOMBINANT HAEMOPHILUS INFLUENZAE ADHESIN PROTEINS
;  FILE REFERENCE: 1038-860
;  CURRENT APPLICATION NUMBER: US/09/268,347
;  CURRENT FILING DATE: 1999-03-16
;  NUMBER OF SEQ ID NOS: 54
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 48
;   LENGTH: 2048
;   TYPE: PRT
;   ORGANISM: Haemophilus influenzae
US-09-268-347-48


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     974 ATCAAAATGGGAAATACTTTTTTAACGACAATAATAATGGCGCAGGAAAA 1023
         ||                        |||:::   |||   :::::::|||
     865 is.......................AspThrAlaAsnLysThrSerLys 873

    1024 ATCGATGCCAAACATAAACACTATTCTCTACCTTATAGATTAAAAACACG 1073
         :::
     874 Val..... 874

    1074 AACCGTTCAATTGTTTAATGTTTCTTTATCCGAGACAGCAAGAGAACCTG 1123
                  ::::::::::|||:::::::::::|||          :
     875 .........ValTyrAspValAsnValAspAspThr...........T 884

    1124 TTTATCATGCTGCAGGTGGGGTCAACAGTTATCGACCCAGACTGAATAAT 1173
         ::   |||   :::|||
     884 hrIleHisLeuThrGly............................... 889

    1174 GGAGAAAATATTTCCTTTATTGACAAAGGAAAAGGTGAATTGATACTTAC 1223
                                    |||   :::|||          :::   ||
     890 ..................ThrAspAspAsnLysLysLeuGlyValLysTh 900

    1224 CAGCAACATCAACCAAGGCGCGGGCGGTTTGTATTTTGAGGGTAATTTTA 1273
         |::::::::::|||:::   :::::::::                 ||||||:
     900 rThrLysLeuAsnLysThrSerAlaAsnGlyAsnThrAlaThrAsnPheA 917

    1274 CGGTCTCGCCTAAAAACAACGAAACGTGGCAAGGCGCGGGCGTTCATATC 1323
         ::|||:::   ::::::::::::::::      :::|||
     917 snValAsnSerSerAspGluAspAlaLeuValAsnAlaLysAspIleAla 933

    1324 AGTGATGGCAGTACCGTTACTTGGAAAGTAAAC.........GGCGTGGC 1364
         ::::::   :::|||::::::   :::::::::         |||:::||
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 934 GluAsnLeuAsnThrLeuAlaLysGluIleHisThrThrLysGlyThrAl 950

1365 AAACGACCGCCTGTCCAAAATCGGCAAAGGCACGCTGCTGGTTCAAGCCA 1414
     |:::     |||:::                 |||:::   |||:::
 950 aAspThrAlaLeuGln.............ThrPheThrValLysLysV 962

1415 AAGGGGAAAACCAAGGCTCGGTCAGCGTGGGCGACGGTAAAGTCATCTTA 1464
       ||||||:::::::::
 962 alAspGluAsnAsnAsnAlaAsp..................... 969

1465 GATCAGCAGGCGGACGATCAAGGCAAAAAACAAGCCTTTAGTGAAATCGG 1514
     |||   :::|||         |||:::|||:::|||   ::::::::::
 970 AspAlaAsnAlaIleThrValGlyGlnLysAsnAlaAsnAsnGlnValAs 986

1515 CTTGGTCAGCGGCAGGGGGACGGTGCAACTGAATGCCGATAATCAGTTCA 1564
     :   ::::::   :::|||         ||||||      ::::::   |
 986 nThrLeuThrLeuLysGlyGluAsnGlyLeuAsnIleLysThrAspLysA 1003

1565 ACCCCGACAAACTCTAT.............TTCGGCTTTCGCGGCGGA 1599
     ||            :::                |||::::::::::|||
1003 snGlyThrValThrPheGlyIleAsnThrThrSerGlyLeuLysAlaGly 1019

1600 CGTTTGGATTTGAACGGGCATTCGCTTTCGTTC.............. 1632
     :::     ||||||     :::|||||||:::          '
1020 LysSerThrLeuAsnAspGlyGlyLeuSerIleLysAsnProThrGlySe 1036

1633 .CACCGCATTCAAAATACCGATGAAGGGGCGATGATTGTCAACCACAATC 1681
      ::::::||||||        :::|||:::   :::::::::   |||:
1036 rGluGlnIleGlnValGlyAlaAspGlyValLysPheAlaLysValAsnA 1053

1682 AAGACAAAGAATCCACCGTTACCATTACAGGCAATAAAGATATTACTACA 1731
     :::::            :::   |||   |||:::      ||||||
1053 snAsnGlyValValGlyAlaGlyIleAspGlyThrThrArgIleThrArg 1069

1732 ..............ACCGGCAATAACAACAACTTGGATAGCAAAAAAGA 1766
                    ||||||:::|||:::::::||||||::::::|||
1070 AspGluIleGlyPheThrGlyThrAsnGlySerLeuAspLysSerLysPr 1086

1767 AATTGCCTACAACGGTTGGTTTGGCGAGAAAGATGCAACCAAAACGAACG 1816
                              :::|||||||:::   :::::::::|
1086 oHisLeu.................SerLysAspGlyIleAsnAlaGlyG 1097

1817 GGCGGCTCAATCTGAATTACCAACCGGAAGAAGCGGATCGCACTTTACTG 1866
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1097 lyLysLysIleThrAsnIleGln........................... 1104

1867 CTTTCCGGCGGAACAAATTTAAACGGCAATATCACGCAAACAAACGGCAA 1916
       ||||||      :::   |||::::::   :::   |||:::||||
1105 ...SerGlyGluIleGlnAlaAsnSerHisAspAlaValThrGlyGlyLy 1120

1917 ACTGTTT.....................................T 1924
     |:::::
1120 sIleTyrAspLeuLysThrGluLeuGluAsnLysIleSerSerThrAlaL 1137

1925 TCAGCGGCAGACCGACACCGCACGCCTACAATCATTTAGGAAGCGGGTGG 1974
       :::::::::   :::   |||   :::::: :::   :::      ||
1137 ysThrAlaGlnAsnSerLeuHisGluPheSer.ValAlaAspGluGlnGl 1153

1975 TCAAAAATGGAAGGTATCCCACAAGGAGAAATCGTGTGGGACAACGATTG 2024
     |:::::::::   ||||||:::       :::|||      |||:::
1153 yAsnAsnPheThrValSerAsnProTyrSerSerTyrAspThrSerLysT 1170

2025 GATCGACCGC....ACATTTAAAGCGGAAAACTTCCATATTCAGGGCGGA 2070
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1170 hrSerAspValIleThrPheAlaGlyGluAsn...........GlyIle 1182

2071 CAAGCGGTGGTTTCCCGCAATGTTGCCAAAGTGGAAGGCGATTGGCATTT 2120
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2121 A.....................AGCAATCACGCCCAAGCAG 2140
                            :::|||:::::::::::::
1199 sGlyLeuThrThrProLysLeuThrValGlyAsnAsnAsnGlyLysGlyI 1216

2141 TTTTCGGTGTCGCACCGCATCAAAGCCACACAATCTGTACACGTTCGGAC 2190
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1216 leValIleAspSerGlnAsnGlyGlnAsnThrIle.............. 1227

2191 TGGACGGGTCTGACAAGTTGTACCGAAAAAACCATTACCGACGATAAAGT 2240
       |||||||||::::::   |||      ::::::|||:::||||||
1228 ...ThrGlyLeuSerAsn...ThrLeuAlaAsnValThrAsnAspLys.. 1241

2241 GATTGCTTCATTGAGCAAGACCGACATCAGAGGCAATGTC.......... 2280
       :::|||:::      |||:::   :::|||||||:::
1242 ....GlySerValArgThrThrGlu...GlnGlyAsnIleIleLysAspG 1256

2281 ...................AGCCTTGCCGAT......CACGCTCATTTA 2304
                          |||:::::|||         |||   :::
1256 luAspLysThrArgAlaAlaSerIleValAspValLeuSerAlaGlyPhe 1272

2305 AATCTCACAGGACTTGCCACACTCAACGGC..................... 2334
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1273 AsnLeuGlnGly............AsnGlyGluAlaValAspPheValSe 1285

2335 ..............AATCTTAGTGCAGGCGGAGACACGCACTATACGG 2368
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2369 TTACGCGCAACGCCACC............................... 2385
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1302 alThrTyrAspAspThrSerLysThrSerLysValValTyrAspValAsn 1318

2386 .....................................CAAAACGG 2393
                                          ::::::
1319 AspAspThrThrIleGluValLysAspLysLysLeuGlyValLysThrTh 1335

2394 CAACCTCAGCCTCGTGGGC.........AATGCCCAAGCAACATTTAATC 2434
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1335 rThrLeuThrSerThrGlyThrGlyAlaAsnLysPheAlaLeuSerAsnG 1352

2435 AAGCCACATTAAACGGCAACACATCGGCTTCGGACAATGCTTCATTTAAT 2484
     |||||||   ::::::   ::::::|||||||||   ::::::   :::
1352 lnAlaThrGlyAspAlaLeuValLysAlaSerAspIleValAlaHisSer 1368

2485 CTAAGCAACAACGCCGTACAAAACGGCAGTCTGACGCTTTCCGACAACGC 2534
     |||:::                          |||||||||   :::
1369 LeuAsn.........................ThrLeuSerGlyAspIl 1376

2535 TAAGGCAAACGTAAGCCATTCCGCACTCAACGGCAATGTCTCCCTAGCCG 2584
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2585 AT............AAGGCAGTATTCCAT......TTTGAAAACAGCCGC 2616
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1393 spAlaAspGlyAsnLysIleValIleTyrAspSerThrAspAsnLysTyr 1409

2617 TTTACCGGAAAAATCAGCGGCGGCAAGGATACGGCATTACACTTAAAAGA 2666
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1410 TyrGlnAlaLysAsnAspGlyThrValAspLysThrLysGluValAlaLy 1426

2667 CAGCGAATGGACGCTGCCGTCGGGCACGGAATTAGGCAATTTAAACCTTG 2716
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1426 sAspLysLeuValAlaGlnAlaGlnThrProAspGlyThrLeuAlaGlnM 1443

2717 ACAACGCCACCATTACACTCAATTCCGCCTATCGACACGATGCGGCAGGC 2766
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1443 etAsnValLysSerValIleAsnLysGluGlnValAsnAspAlaAsnLys 1459

2767 GCGCAA.........................ACCGGCAGTGCGGCAGA 2789
       |||                           |||
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2790 TGCGCCGCGCCGCCGTTCGCGCCGTTCCCTATTATCCGTT.......... 2829
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2830 .............ACGCCG.....................CCAACTTCG 2844
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2941 ...........AAATTGAAGCTGGCGGAAAGTTCCGAAGGCACTTACACC 2979
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1557 Val.........AsnAlaGlyGlyThrLysIleAspAspLysGlyValSe 1570

3030 GGTAGTG............GAAGGAAAAGACAACACACCGCTGTCCGAAA 3067
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1570 rPheValAspSerSerGlyGlnAlaLysAlaAsnThrProVal....... 1584

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3118 TATCAGCTTATCCGCAAAGACGGCGAG...TTCCGCCTGCATAATCCGGT 3164
        ::::::|||   :::   |||:::      :::      :::   ::
1595 ...LysValIleSerAsnValGlyLysGlyThrLysAspThrAspAlaAl 1610

3165 CAAAGAACAAGAGCTTTCCGAC..............AAACTCGGCAAGG 3199
     ::::   |||:::|||::::::                  ||||||:::|
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1627 laGlyAsnAspAsnAla......AspGlyAsnGlnValAsnIleAlaAsp 1641

3250 AAACAACAGGCGGAAAAAGACAACGCGCAAAGCCTTGACGCGCTGATTGC 3299
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3300 GGCC.....................GGGCGCAATGCCACCGAAAAGGCAG 3328
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3329 AAAGTGTTGCCGAACCGGCCCGGCAGGCAGGCGGGGAAAATGCCGGCATT 3378
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1675 laThr.......................GlyGlyIleGlnValGlyVal 1683

3379 ATGCAGGCGGAGGAAGAGAAAAAACGGGTGCAGGCGGATAAAGACACCGC 3428
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1684 ....................................AspLysAsp..... 1686

3429 CTTGGCGAAACAGCGCGAAGCGGAAACCCGGCCGGCTACCACCGCCTTCC 3478

1686 ..................................................... 1686

3479 CCCGCGCCCGCCGCGCCCGCCGGGATTTGCCGCAACCGCAGCCCCAACCG 3528
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1687 ........GlyAsnAlaAsnGlyAspLeuSerAsnValTrpValLysThr 1700

3529 CAACCCCAA...CCGCAGCGCGACCTGATCAGCCGTTATGCCAATAGCGG 3575
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1701 GlnLysAspGlySerLysLysAlaLeuLeuAlaThrTyrAsnAlaAlaGl 1717

3576 TTTGAGTGAATTTTCCGCCACGCTCAACAGCGTTTTCGCCGTACAGGACG 3625
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1717 yGlnThrAsnTyr...LeuThrAsnAsnProAlaGluAlaIle....... 1730

3626 AATTGGACCGCGTGTTTGCCGAA.......................... 3648

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1731 .....AspArgIleAsnGluGlnGlyIleArgPhePheHisValAsnAsp 1745

3649 ...................GACCGCCGCAACGCCGTTTGGACAAGCGG 3677
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1762 a......SerGlyLysHisSerValAlaIleGlyPheGlnAlaLysAlaA 1777

3728 AACAAACCGACCTGCGCCAAATCGGTATGCAGAAAAACCTCGGCAGCGGG 3777
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1777 spGlyGluAlaAlaValAlaIleGlyArgGlnThrGlnAlaGlyAsnGln 1793

3778 CGCGTCGGCATCCTGTTTTCGCACAACCGGACCGGA.............. 3813
        :::::::|||      :::   :::   ||||||
1794 SerIleAlaIleGlyAspAsnAlaGlnAlaThrGlyAspGlnSerIleAl 1810

3813 ..................................................... 3813

1810 aIleGlyArgThrAsnValValAlaGlyLysHisSerGlyAlaIleGlyA 1827

3814 ......................AACACCTTCGACGACGGCATCGGCAAC 3840
                            |||::::::      ::::::||||||
1827 spProSerThrValLysAlaAspAsnSerTyr......SerValGlyAsn 1841

3841 TCGGCACGGCTTGCCCACGGTGCCGTTTTCGGGCAATACGGCATCGGCAG 3890
     :::   :::::::::   ::::::              :::|||:::|||::
1842 AsnAsnGlnPheThrAspAlaThrGlnThrAspValPheGlyValGlyAs 1858

3891 GTTCGACATCGGCATCAGCGCGGGCGCGGGTTTTAGTAGCGGCAGCCTTT 3940
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1858 n...AsnIleThrValThrGluSerAsnSerValAlaLeuGlySerAsnS 1874

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1874 erAlaIleSerAlaGly.................ThrHisAlaGlyThr 1884

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1901 aThrGlyThrValLysGlyPheAlaGlyGlnThrAlaValGlyAlaValS 1918

4052 GCTATTTCGTCCAAAAAGCGGATTACCGATACGAAAACGTCAATATC... 4098
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1918 erValGlyAlaSerGlyAlaGluArgArgIleGlnAsnValAlaAlaGly 1934

4098 ..................................................... 4098

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4099 ......................GCCACCCCGGGCCTTGCATTCAACCGCT 4126
                             ||||||      |||      :::   :
1951 sAlaThrGlnSerIleAlaAsnAlaThrAsnGluLeuAspHisArgIleH 1968

4127 ACCGCGCGGGCATTAAGGCAGATTATTCATTCAAACCGGCGCAACACATT 4176
     :::::         ||||||:::   :::::::::   |||:::   :::
1968 isGlnAsnGluAsnLysAlaAsnAlaGlyIleSerSerAlaMetAlaMet 1984

4177 TCCATCACGCCTTATTTGAGCCTGTCCTATACCGATGCCGCTTCCGGCAA 4226
     :::      |||         :::         :::   ::::::|||
1985 AlaSerMetProGlnAlaTyrIleProGlyArgSerMetValThrGlyGl 2001

4227 AGTCCGAACGCGCGTCAATACCGCCGTATTGGCGCAGGATTTCGGCAAA. 4275
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2001 yIleAlaThrHisAsnGlyGlnGlyAlaValAlaValGlyLeuSerLysL 2018

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 seq_name: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:US-09-413-814-79

 seq_documentation_block:
 ; Sequence 79, Application US/09413814
 ; Patent No. 6225064
 ; GENERAL INFORMATION:
 ;  APPLICANT: Gesellschaft fuer Biotechnologische Forschung mbH
 ;  APPLICANT: Bristol-Myers Squibb, Co.
 ;  APPLICANT: Beyer, Stefan
 ;  APPLICANT: Bloecker, Helmut
 ;  APPLICANT: Brandt, Petra
 ;  APPLICANT: Cino, Paul M
 ;  APPLICANT: Dougherty, Brian A
 ;  APPLICANT: Goldberg, Steven L
 ;  APPLICANT: Hofle, Gerhard
 ;  APPLICANT: Mueller, Joachim
 ;  APPLICANT: Reichenbach, Hans
 ;  TITLE OF INVENTION: DNA sequences for enzymatic synthesis of polyketide or
 ;  TITLE OF INVENTION: heteropolyketide compounds
 ;  FILE REFERENCE: PCT/US 99/23535
 ;  CURRENT APPLICATION NUMBER: US/09/413,814
 ;  CURRENT FILING DATE: 1999-10-07
 ;  EARLIER APPLICATION NUMBER: DE 198 46 493.2
 ;  EARLIER FILING DATE: 1998-10-09
 ;  NUMBER OF SEQ ID NOS: 107
 ;  SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 79
 ;   LENGTH: 1213
 ;   TYPE: PRT
 ;   ORGANISM: Sorangium cellulosum
 US-09-413-814-79


 alignment_scores:
             Quality:  211.00            Length:    693
               Ratio:  0.751               Gaps:     33
  Percent Similarity:  40.548   Percent Identity: 24.820

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  Align seg 1/1  to: US-09-413-814-79  from: 1  to: 1213

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     2612 GCCGCTTTACCGGAAAAATCAGCGGCGGCAAGGATACGGCATTACACTTA 2661
                  |||:::::::::|||||   |||   ::::::
       18 .......AlaArgArgGlyAspArgArgGlyGlyLeuAlaLeuArgSerA 32

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     2712 CCTTGACAACGCCACCATTACACTCAATTCCGCCTATCGACACGATGCGG 2761
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       43 ............................GluGlyLeuGlyAlaGlyGl 49

     2762 CAGGCGCGCAAACCGGCAGTGCGGCAGATGCGCCGCGCCGCCGTTCGCGC 2811
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       49 yArgArgAlaArgArgAlaAlaArgArgArgArgLeuProAlaProGlyP 66

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       66 roSerPro..................................... 68
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      108 ArgGlyArgAlaValAlaArgAlaAlaArgArgAla.............. 119

     3062 CCGAAAATCTTAATTTCACCCTGCAAAACGAACACGTCGATGCCGGCGCA 3111
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      120 ..................ProAlaAlaArgArgLysHisGlyArg.... 128

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      129 .................ProGlyLeuArgAspLeuHisValArgValHis 139

     3150 CCTGCATAATCCGGTCAAAGAACAAGAGCTTTCCGACAAACTCGGCAAGG 3199
            |||   :::|||:::      |||      |||:::   ::::::||
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     3200 CGGGAGAAACAGAGGCCGCCTTGACGGCAAAACAGGCACAACTTGCCGCC 3249
          |   |||::::::      |||                          |||:
      156 yProArgHisGlnProProLeu.......................ArgA 165

     3250 AAACAACAGGCGGAAAAAGACAACGCGCA.............AAGCCT 3284
          ::      ||||||        ||||||              :::|||
      165 rgArgProGlyGlyProGlyAlaArgAlaLeuValAlaGluLeuArgPro 181

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                                |||:::   |||   :::   ::|||
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     3323 AGGCAGAAAGTGTTGCCGAACCGGCCCGGCAGGCAGGCGGGGAAAATGCC 3372
            |||          |||  |||   :::|||      :::::::::|
      198 pProArgProTyrProArgLeuGly...SerGlyAlaLeuAlaArgAlaA 214

     3373 GGCATTATGCAGGCGGAGGAAGAGAAAAAACGGGTGCAGGCGGATAAAGA 3422
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      214 rgGlyAlaArgAlaGlyAspArgValGluLeuGlyProGlyAlaAspGly 230

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      231 AspAlaHisGlyArgValProArgArgGlyArgPro...GlyAlaValVa 246

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      282 g..............GlyValAspLeuValAspArgProProAspArg. 293

     3664 GTTTGGACAAGCGGCATCCGGGACACCAAACACTACCGTTCGCAAGATTT 3713
                  |||:::||||||                    |||:::
      294 ........GlyArgArgProGly..............ValAlaGlnHis 302

     3714 CCGCGCCTACCGCCAACAAACCGACCTGCG..................... 3743
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     |||      ||||||:::::::::||||||
 303 ProLeuArgProProAlaArgGluProAlaHisLeuArgAlaArgArgGl 319

3744 .........................CCAAATCGGTATGCAGAAAAACCTC 3768
                               |||:::|||            |||:
 319 yAlaGlyAlaValSerAspArgGlyProArgArg.........AspProH 333

3769 GGCAGCGGGCGCGTCGGCATCCTGTTTTC..................... 3797
     :::::|||   ||||||||:::     :::
 333 isArgArgAspArgArgArgAlaArgIleLeuAlaArgArgGlyAlaAsp 349

3798 ......GCACAACCGGACCGGAAACACCTTCGACGA.........CGGCA 3832
           |||   |||:::      |||   ||||||         :::
 350 ProGlyAlaValProGluAlaProHisAspArgArgAlaAlaValGlnAs 366

3833 TCGGCAACTCGGCACGGCTTGCCCACGGTGCCGTTTTCGGGCAATACGG. 3881
      |||:::   |||             |||          ||||||   |||
 366 pArgArgProGlyProLeuLeuArgArgArgAspHisArgAlaAlaArgA 383

3882 ..CATCGG.................CAGGTTCGACATCGGCATCAGCGC 3911
       ||||||                 ::::::   ||||||   :::|||
 383 laHisArgProSerGlyGluAspProArgLeuProHisArgAlaArgArg 399

3912 GGGCGCGGGTTTTAGTAGCGGCAGCCTTTCAGACGGCATCAGAGGCAAAA 3961
        ||||||              |||:::   |||         :::::
 400 AspArgGlyArgProArgAlaAlaProLeuGlyArgAlaGlyGlyArgGl 416

3962 TCCGCCGCCGCGTGCTGCATTACGGCATTCAGGCAAGATACCGCGCAGGT 4011
     :         |||:::::::   |||::::::          |||   |||
 416 yGlyGluAspArgSerValGlyArgGluAla.........ProGlyArgV 430

4012 TTCGGCGGATTCGGCATCGAACCGCACATCGGCGCAACGCGCTATTTCGT 4061
       ||||||   |||:::|||          ||||||          :::|||
 430 alArgArg...ArgArgArgArgArgTrpArgArgAlaProArgLeuArg 445

4062 CCAAAA......AGCGGATTACCGATACGAAAACGTCAATATCGCCACCC 4105
     |||:::      :::|||:::        :::          |||   ||
 446 ProGluGluAlaAlaGlyValHisAspProArgGlyGlyArgArgProPr 462

4106 CGGGCCTTGCATTCAACCGCTACCGCGCGGGCATTAAGGCAGATTATTCA 4155
     ||||   :::   :::          :::|||          |||
 462 oGlyAlaAlaAlaGluArgGluArgGlnGlyGlyProArgArg....... 476

4156 TTCAAACCGGCGCAACACATTTCCATCACGCCTTATTTGAGCCTGTCCTA 4205
          :::|||:::   :::   :::   |||
 477 ..ProAlaGlySerArgArgGlyArgAlaAla.................. 486

4206 TACCGATGCCGCTTCCGGCAAAGTCCGAACGCGCGTCAATACCGCCGTAT 4255
        |||         |||   :::   :::   |||       :::|||::
 487 ...ArgArgGlyArgArgProAlaAspArgAspArgAlaAlaHisArgLe 502

4256 TGGCGCAGGATTTCGGCAAAACCCGCAGTGCGGAATGGGGCGTAAACGCC 4305
     :||||||         ::::::      :::|||   ||||||:::|||
 502 uGlyAla.........ArgGlyGlyLeuAlaGlyArgGlyArgArgArgA 516

4306 GAAATCAA............AGGTTTCACGCTGTCCCTCCACGCTGCCGC 4343
       :::|||            |||:::|||   :::   ||||||:::|||
 516 spArgGlnProLeuArgAlaArgLeuHisLeuAlaAlaProArgAlaArg 532

4344 ..............................................CG 4345
                                                    ||
 533 AlaAlaProAlaArgArgAlaHisArgGlyAlaArgAlaArgArgGlyAr 549

4346 CCAAGGGGCC..................................... 4355
     |:::||||||
 549 gArgGlyAlaGlyArgValAlaAspArgProValProValProAspHisA 566

4356 ..GCAATTGGAAGCGCAGCACAGCGCGGG 4382
       |||   |||:::||||||:::||||||
 566 rgAlaThrGlyAlaAlaAlaArgArgGly 575
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